

Low Maintenance LANDSCAPING for the Barnegat Bay Watershed

A GUIDE FOR OCEAN COUNTY HOMEOWNERS

PHOTO: C. MINERS



OCEAN COUNTY SOIL CONSERVATION DISTRICT
RUTGERS COOPERATIVE EXTENSION OF OCEAN COUNTY
BARNEGAT BAY NATIONAL ESTUARY PROGRAM

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Partnership member organizations include USDA – Natural Resources Conservation Service, Rutgers Cooperative Extension, Ocean County Soil Conservation District, Ocean County Planning Board, New Jersey Department of Environmental Protection, and the South Jersey Resource Conservation and Development Council.

The Ocean County Soil Conservation District contracted with Rutgers Cooperative Extension of Ocean County to prepare this publication. Horticulturist Albert Clericuzio and County Agent Deborah Smith-Fiola wrote this guidebook.

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**CLIMBING
TRUMPET
VINE**



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PURPOSE

This guide explains to Ocean County homeowners how they will save time and money on landscaping by using effective horticultural practices.

Ocean County's sandy, acidic soil makes conventional landscaping difficult or impractical. For example, turfgrasses that grow well in other parts of New Jersey need larger amounts of topsoil, water, fertilizer, and pesticides to grow in Ocean County. Maintaining a lawn and landscape unsuited to our particular conditions requires unnecessary expenditures of time and money.

The low maintenance landscaping techniques described in this guide offer practical and inexpensive ways to landscape in Ocean County. Selecting ornamental plants and lawn grasses suitable to your yards soil and sunlight conditions will provide an attractive landscape with minimal expense and effort. Proper soil preparation, watering, and mowing will reduce the need for expensive fertilizers and pesticides and shrink the amount of time needed to maintain your landscape.

By using these landscaping techniques you will also reduce nonpoint source pollutants, such as fertilizers and pesticides that are transported by stormwater runoff. These pollutants enter our lakes, rivers and streams and eventually drain into Barnegat Bay. Low maintenance landscaping techniques also reduce water consumption, helping to preserve the aquifers that sustain Barnegat Bay and Ocean County's streams and wetlands.

For more information about preventing nonpoint source pollution, contact the Ocean County Soil Conservation District, 714 Lacey Road, Forked River, NJ 08731, (609) 971-7002, or visit their web site at www.ocscd.org.

 **FACT:** Most of Ocean County is located within the 660 square mile drainage basin known as the Barnegat Bay Watershed.

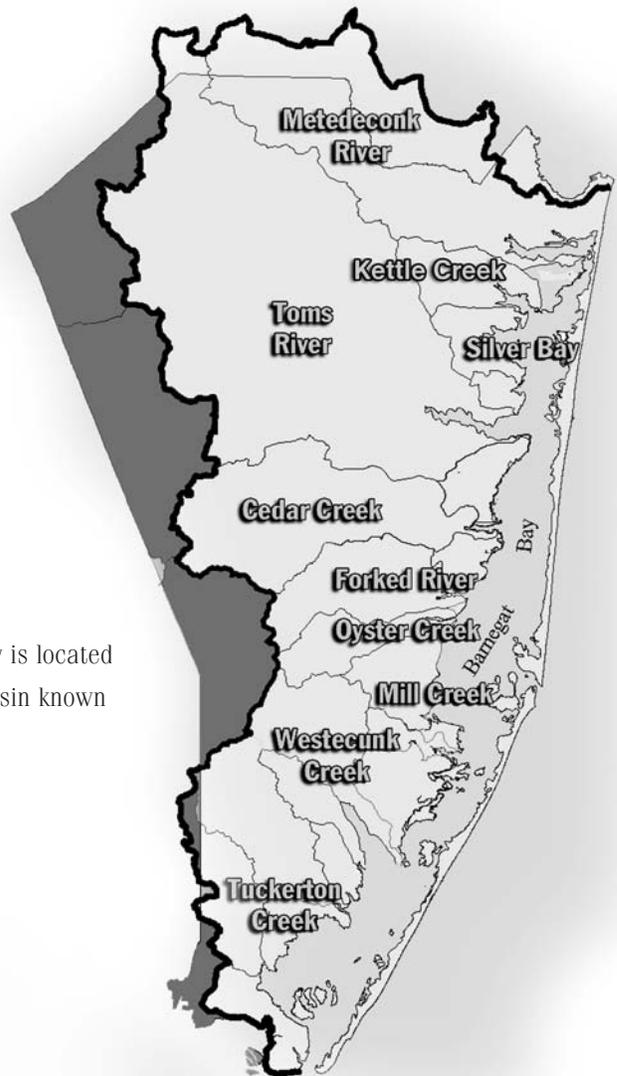




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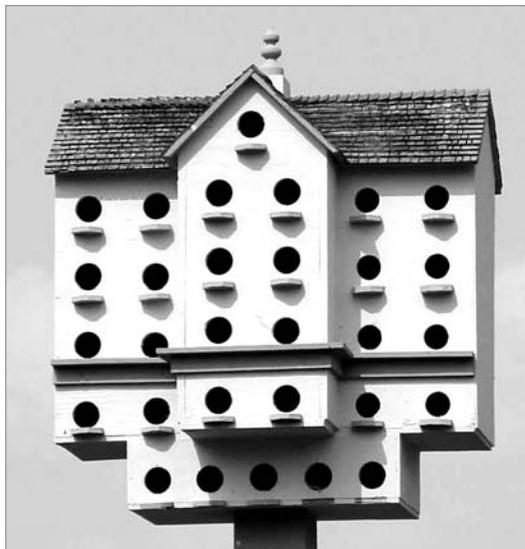
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PHOTO: C. MINERS



Invite the birds

 *Use native plants*

PHOTO: C. MINERS





INTRODUCTION

LOW MAINTENANCE LANDSCAPING
is based upon eight simple and effective
horticultural techniques:

1.

PROPER SOIL PREPARATION

This is the foundation of a successful low maintenance landscape.

2.

CAREFUL PLANT SELECTION

Match the plant to the soil and sunlight conditions of your site.

3.

REDUCED LAWN SIZE

The smaller the lawn, the easier and less expensive it will be to maintain.

4.

MINIMAL WATERING

Water lawns and plants only when needed.
Plants need about an inch of water a week.
Don't waste water or irrigate unnecessarily.

5.

MULCHING

Applying mulch annually around trees, shrubs, and flowerbeds will conserve water and reduce weeds.

6.

LIMITED FERTILIZATION

Fertilize according to the requirements of your soil as indicated by a soil test.
Fertilize lawns in the fall for best results.

7.

PROPER PRUNING

Pruning helps new plants maintain healthy growth by the removal of dead, diseased, damaged or insect infested parts.

8.

“ENVIRONMENT FRIENDLY” PEST CONTROL

Use Integrated Pest Management (IPM) methods to manage pests instead of relying solely upon conventional pesticides.



LOW MAINTENANCE LANDSCAPING

**begins with the first and most important step –
PROPER PLANNING.**



Chapter I THE BEGINNING: Plan before you plant

SKETCH YOUR PROPERTY

Spend a little time planning now to save a lot of time and money later.

Take a large piece of paper and draw a rough sketch of your property. Include all buildings, large trees, and existing plantings. If your home is new and not landscaped, mark off the areas where your lawn, shrubs, vegetables, and flower gardens will be located. Don't forget to set aside areas for eating, lounging, children's play, and perhaps a fence, trellis, or windscreen for your patio or swimming pool. Why not plan for less turfgrass? Today's modern landscapes are filled with lawn alternatives.

Be sure to note the sunny and shady spots. Include "problem" areas such as those with standing water or steep slopes. These areas could have drainage problems.

Your sketch will serve as your guide when you choose plants and materials. Remember, you don't have to finish the entire landscape all at once. Your drawing will remind you of your long-range plans, as well as the favorable and not so favorable places in your yard.

EVALUATE YOUR SOIL

Soil is the most important component of any landscape. Although soils vary from site to site, most soil in Ocean County is sandy and acidic. In most cases, the good soil around your home was altered during construction.

The subsoil at new home sites often lacks many of the nutrients needed for plant growth.

"Why plant a \$50 plant in a \$5 hole?" is an old gardener's adage that applies to your landscape. Poor soil conditions weaken plants and makes them more susceptible to drought stress and pest attack.

Grab your sketch and a shovel, head outside, and turn over a few spadefuls of soil in the different areas of the landscape. Include the lawn, shrub border, vegetable-flower gardens, and foundation areas.

? Are there any soil color differences? Bluish gray flecks or mottled colors may indicate poor drainage.

? What does your soil feel like when you try to roll a small amount of it between the fingers of your hand? Try this about three days after a rain. If it has a slippery feeling, the sample is clay; a sandy sample feels gritty.

? Do you smell anything strange? Unpleasant odors may indicate low oxygen levels that are the results of compacted soil or poor drainage.

? Did you find water or soaking wet soil? If the answer is "yes," select plants adapted to wetland areas, or consider installing a drainage system (French drains).

? On the sketch, identify the various soil areas – clay, sandy, wet, and dry. All of this has special meaning when it comes to plant choices and soil preparation.

DRAINAGE AND FLOODING

How your property is graded affects the drainage. Keep in mind that when soil is flooded with water, it can't get needed oxygen from the air. Also, if your property is near Barnegat Bay and occasionally covered with brackish bay water, it may have a salt problem. When it rains, study the flow of the water across your property. Note any low spots or puddles on your sketch. Mark the areas that are sloping. Steeply sloped grades are usually drier at the top, wetter at the bottom. This will influence your plant selections.

OTHER CONSIDERATIONS

Obviously, the landscape is molded by more than just the soil. Even if a plant is rooted in good soil, the plant foliage is affected by other environmental conditions, such as sunlight, shade, wind, and salt.

SUNLIGHT AND SHADE

Plants need sunlight to make food (photosynthesis) and survive. On a sunny day, note how many hours of direct sun each area of the landscape receives. Are some areas shaded all day, or only in the morning or afternoon? Some shade loving plants will do poorly even if they get only a few hours of direct afternoon sun. On the other hand, many plants need sun for at least four hours each day. This is important information for your site sketch and will guide your plant selection.

WIND

Open landscapes or bayside locations may have trouble with wind. The wind causes plants to lose water by evaporation from the leaves. If water evaporates faster than replacement water can come up from the roots, the plants could wilt, then burn or even die. This happens in winter and early spring when the ground is still frozen. Plants in a windy area will need extra watering, especially evergreens.

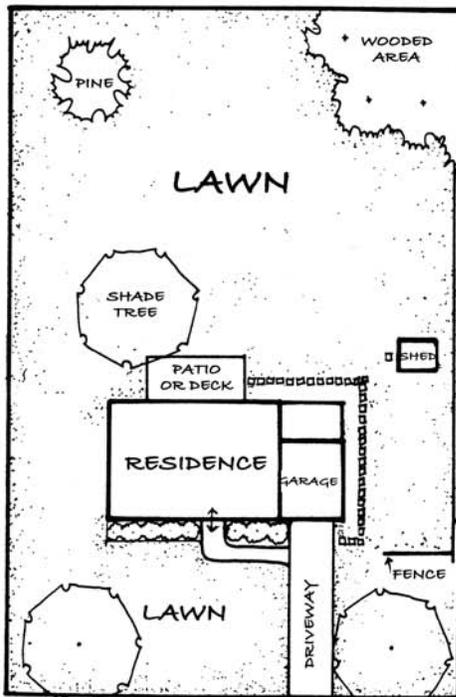


NOTE ON YOUR SKETCH the direction of the prevailing winds. This is easy to do. Just look at the big, older trees and see the direction of their growth. Plant trees on the northeast and northwest sides to block the wind. Shading driveways and sidewalks will lower your summer electric bills by lowering the temperature outside the house.

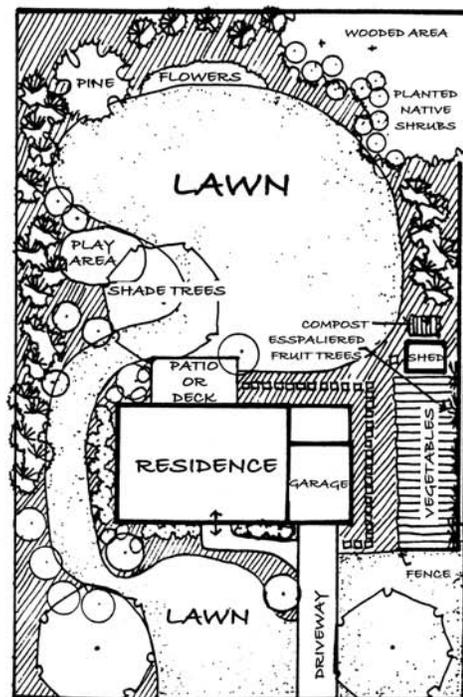
SALT

Storms and winds along waterfront locations leave plants dripping with salty sea or bay water. When this spray evaporates, the plants may be left coated with salt. This causes plants to dehydrate (lose water), which could burn the foliage.

Even inland, landscapes can have salt problems. During the winter, salt is spread on roads, driveways and sidewalks and a lot of this salt ends up in your soil. Consider this when selecting plants. Make sure that the plants you choose can survive these harsh conditions.



SEE
APPENDIX F
page 52



TEST YOUR SOIL

Soil testing is one of the most important tasks in landscape management. Have the soil tested before you buy landscape plants, seed a lawn, or add lime and fertilizer. The soil test will tell you exactly what is needed for your site. Don't add supplements just because everyone else does it!

The best time to test soil is at the end of the growing season or during the winter when the ground is not frozen. You will have the results ready for the following growing season. Homeowners can have their soil tested by a professional landscaper or purchase a soil test kit from Rutgers Cooperative Extension (RCE) at a local garden center. Rutgers Cooperative Extension's soil test will evaluate soil texture, pH, and nutrient levels (phosphorus, potassium, calcium, magnesium, copper, manganese, zinc, and boron). Tests for soluble salts and organic content are available for an extra fee. Rutgers Cooperative Extension of Ocean County also offers a soil pH test to determine the soil's acidity or alkalinity. See Appendix C for addresses and complete test kit ordering information.



TO PREPARE A SOIL SAMPLE for the RCE test kit, follow these instructions. For each test, gather five or six random samples of one cup of soil, taken two inches below the surface. Place all samples in a single container and mix thoroughly. Remove one representative sample from the container (about one cup) for the test kit. Mail according to directions. Garden and lawn soil should be tested separately. The same method can also be used to prepare a sample for a soil test kit purchased from a local garden center.

PHOTO: C. MINERS



WHAT IS PH and HOW DOES IT AFFECT YOUR SOIL?

It's important to maintain the proper pH in your soil. Each plant has a soil acidity range necessary for its proper growth and development. When the soil doesn't have the proper pH, plants will develop problems and need extra maintenance. In Ocean County, the soils are generally acidic. Adding lime will counteract that condition. This is much the same as when you have an over acid stomach and you take an antacid to neutralize the acid. Similarly, you add lime as an "antacid" to neutralize acidic soil. Liming recommendations are found on page 19.

Soil pH helps control how nutrients are absorbed into the plant. There are 16 nutrients that are essential for the health of the plant. Plants must get these elements from their surroundings. Nitrogen (N), phosphorus (P), and potassium (K) (sometimes called potash), are the most important nutrients.

Commercial fertilizers list the N-P-K values. Nitrogen (N) maintains the above ground growth and the green color. Phosphorus (P) regulates the roots and shoots. Potassium (K) produces hardy plant tissue and offers protection from the stress of cold and heat. Other nutrients are only needed in small trace amounts. A bag of 10-6-4 fertilizer, for example, contains 10% nitrogen, 6% phosphorus, and 4% potassium.

The pH scale runs from 0 to 14

0	7	14
ACIDIC	NEUTRAL	ALKALINE (OR BASIC)

Most ornamental plants and turfgrasses grow well in slightly acidic soils that have pH values between 5.5 and 6.8. A pH rating of 1 is very acidic. A pH of 7 is the neutral point. This is the pH of pure water. Numbers above 7 indicate alkaline materials. A pH of 4 is ten times more acidic than a pH of 5. Keep this in mind when you add supplements like lime to your soil.

Once you know the soil pH, you can select plants that are adapted to that soil, or correct your soil's pH to suit the plants you have. Plants need nutrients, just like humans need vitamins and minerals. When the soil has the proper pH, the lawn and plants can use the nutrients from the soil. If the soil pH is unsuitable, you must correct it *before* you do anything else. Proper soil pH will help you to have a low maintenance landscape.

IMPROVE YOUR SOIL

Soil is formed from decomposed rocks. Healthy soil contains lots of microorganisms and earthworms. While the worms wiggle through the ground, their paths open the subsoil to oxygen and water. This helps the plant roots. Worm castings become great fertilizer and help maintain a neutral pH.

Ocean County soils tend to be sandy, acidic and low in nutrients. A simple way to improve the soil is to mix in organic materials. This enables sandy soil to hold more water, and often improves the drainage of compacted soils. Humus, peat moss, and leaf compost are the most common organic additives. Composted (not fresh) animal manure may also be used. The best time to apply organic matter is the fall or early spring. The recommended amount is two to four inches, thoroughly mixed into the top six to nine inches of the soil, and not just placed on the top. For large areas, use six cubic yards per 1000 square feet.

Organic matter usually takes a year or two to break down. The soil will be receiving slowly released nutrients during this time. To make your own organic matter, try composting. It's a great way to get the whole family involved in recycling and conservation. Garden compost adds nitrogen to the soil, improves drainage and pH, and can be used as mulch or top-dressing. Contact Rutgers Cooperative Extension for more information about composting.

Unless you are sure of its source, avoid the temptation to buy "topsoil." There are no regulatory standards for topsoil, and

you can't be sure what kind of soil you are getting. If you do purchase topsoil, make sure it's free of unsuitable materials such as broken glass, concrete, plastic, and excessive amounts of gravel and wood chips. Call Rutgers Cooperative Extension and request a copy of the fact sheet entitled, "Topsoils Suitable for Landscape Use."

Remember that healthy soil is the foundation of a healthy landscape. Proper soil preparation will make your plants more attractive and reduce your landscaping costs.

YOUR FINAL LANDSCAPE PLAN

It's time to finish your landscape plan. Decide how much lawn you really want to maintain and mow. What uses will your family make of the different landscape areas? When summer droughts occur, the lawn will quickly become parched. Do you want to spend a lot of time and money watering your lawn?

Consider having a smaller lawn by planting shrub beds, groundcovers, wildflowers, or ornamental grasses. Consider decorative stone, patios, vegetable and flower gardens, decks, or small trees. All are great alternatives to lawns. Refer to Chapter IV for complete information on lawn alternatives.



Now that your landscape plan is finished, it's time to put it into action.

PHOTO: C. MINERS



MUGHO PINE

Chapter II



LOW MAINTENANCE LAWNS: Establishing a low maintenance lawn

A LOW MAINTENANCE LAWN IS AN “ENVIRONMENT FRIENDLY” LAWN

If you are like most people, the word “lawn “ brings to mind a lovely, dense green expanse of grass. This source of pride has a cooling effect and even adds value to your home. However, a lush green lawn has a price — a lot of work and vulnerability to pests. How we establish and care for our lawns has a lasting impact on the environment.

Each year, Americans spend an estimated \$950 million on fertilizers and another \$1.5 billion on pesticides for home use. However, research indicates that a healthy lawn is its *own* best defense against weeds, insects, and disease. Using the proper seed varieties and horticultural practices, you can have a healthy and environmentally sound lawn with only a few weeds or brown spots.

CHOOSING THE PROPER GRASSES

The first task is the selection of turfgrass. For Ocean County, good choices are the fescues — tall fescue and fine fescue. These are cool-season grasses, which grow better in the cooler seasons of the spring and fall. The sandy, droughty soils of Ocean County also support zoysiagrass, a warm-season grass that grows during the summer. Low maintenance grasses like these resist disease and insect attacks and don't need as much water or fertilizer as other types.

Avoid ryegrass and most varieties of Kentucky bluegrass. Annual ryegrass needs too much water, and dies at the end of the season. Perennial ryegrass is a short-lived perennial grass, which is unsuitable for low maintenance conditions. Many varieties of Kentucky bluegrass need a lot of water, fertilizer, pesticides, and dethatching. Bentgrasses are for putting greens and croquet courts, not for home lawns.

KENTUCKY BLUEGRASS



PHOTO CREDIT: USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

THE FESCUES

Fescue mixes are among the best choices for a low maintenance lawn. Don't mow them too low during the summer or overfeed them, and you'll be happy with your choice. When selecting seed varieties, choose those with high endophyte levels. This will minimize insect problems. Endophytes are fungi or bacteria that live within plants and are transferred through seed. Endophytes help produce higher quality lawns, help control webworms and chinch bugs, and seem to make lawns more drought-resistant. Endophyte-enhanced grasses are identified in Appendix B.

TALL FESCUE

Tall fescue makes a great low maintenance lawn. Tall fescue varieties for lawns are labeled “turf-type.” These have been bred to have a thinner, more attractive leaf blade than older, thick-bladed varieties. This grass has a deep root system, so it needs less frequent watering. It also tolerates low fertilization and can handle heat and drought. Although fescues prefer well-drained soils, they grow in a wide range of soil conditions.

Fescues thrive in open, sunny areas and tolerate moderate shade. Tall fescues are tough and can tolerate foot traffic. Tall fescue lawns do not need dethatching. Some varieties may have a beneficial endophyte infection, which reduces insect attacks. (See Appendix B.) Clearly, tall fescue varieties are a good choice for low maintenance lawns in Ocean County.

FINE FESCUE

Fine fescues are another great choice for a low maintenance lawn. These fine-textured grasses grow in poor soil, require little water and thrive in the shade. They need only about one half the amount of nitrogen (N) fertilizer as other turfgrasses. In fact, too much N fertilizer will make them more prone to disease. Fine fescues don't take wear and tear as well as tall fescues and are subject to chinch bug attack. Some varieties contain an endophyte that can reduce insect attacks on the leaf blades.

There are three types of fine fescues recommended for low maintenance lawns in Ocean County — hard fescue, chewings fescue, and creeping red fescue.

HARD FESCUE is preferred by many homeowners for its deep green color, low fertilizer needs, and heat tolerance. This fine, but dense, low-growing turf grows especially well in dry, droughty soils without much fertilizer. Although it is difficult to get started, hard fescue is an excellent choice for low maintenance lawns.

CHEWINGS FESCUE can produce the best-looking lawn, a bright medium green color. It forms a fine, dense, short-growing turf that can tolerate low mowing.

CREEPING RED FESCUE has thin leaf blades. It is good for shaded areas, but not for wet sites. This fescue spreads easily, making it useful for filling in thin turf areas. It also recovers quickly from injury.

ZOYSIAGRASS

Zoysiagrass has some advantages that makes it useful for lawns, particularly in poor or sandy soils. It grows well and stays green during the hot summer months, but is dormant during the spring and fall. This thick summer growth prevents and controls crabgrass and summer weed growth. Zoysiagrass can survive hot weather and requires less water than most cool-season grasses. Once established, it tolerates low fertility, and withstands low mowing.

As a warm-season grass, zoysiagrass will lose its green color and become brown/straw colored about mid-October. This brown color will remain until about mid-May of the following spring. Thus, the decision to use zoysiagrass requires a personal acceptance of its brown color during winter. Zoysiagrass does not grow well in shady areas and may take several years to establish itself. *The types 'Meyer' and 'Emerald' can survive New Jersey's winters.*

PERENNIAL RYEGRASS

Perennial ryegrass is a narrow-bladed turfgrass that is used in seed mixes because it germinates quickly. It is often used to overseed thin lawns, yet continually doing so may result in a lawn dominated by ryegrass. Older varieties are prone to insect attack, so select a type containing an endophyte (see Appendix B) that resists insects. Perennial ryegrass often fails to survive a droughty summer without irrigation. It needs too much water and fertilizer for a high quality, low maintenance lawn. Don't use more than 20% perennial ryegrass in your lawn mix.

KENTUCKY BLUEGRASS

Kentucky bluegrass is popular for its color, durability, and carpet-like texture. Most varieties, however, require high maintenance, such as more water in hot, dry weather. In a summer drought, bluegrass goes dormant and turns straw color if not watered. Many homeowners don't like this look, so they waste a lot of water to keep it green throughout the drought. This isn't necessary since bluegrass recovers by the fall.

Kentucky bluegrass germinates slowly, and its resistance to insects and disease depends upon the variety. There's quite a difference among bluegrass varieties. Only specific varieties of Kentucky bluegrass (see Appendix B) are suitable for Ocean County conditions and low maintenance lawns. *If you cannot obtain the specific low maintenance bluegrass varieties listed in Appendix B, select another turfgrass type for your low maintenance lawn.*

GENERAL SEEDING RECOMMENDATIONS

In Appendix B, there are two tables that list turfgrass seed recommendations for Ocean County. If you cannot find the packaged seed blend that you want, buy packages of the varieties separately and make your own blend. As you purchase your turfgrass seeds, keep these points in mind:

- Buy what you need now. Don't buy large amounts of bargain seeds that lose their viability and endophyte protection during storage.
- Buy fresh seed with a germination test date less than nine months old.
- Read the seed label very carefully.
- Make sure that no more than 1% of the seed is weeds. Undesirable grass seed and agricultural crop seed should not exceed 0.5%.



SHOULD YOU START OVER OR RENOVATE YOUR LAWN?

When your turfgrass becomes unattractive, sparse, and weed infested, you must decide whether to renovate or completely re-establish the lawn. As a rule of thumb, you should re-establish your lawn when 50% or more appears undesirable. If more than half of your turfgrass is intact, you can renovate your existing lawn. Making the right decision will save you time and money.

STARTING OVER: establishing the lawn

SEEDING THE LAWN

If you've decided to completely re-establish your lawn, test your soil and decide which type of seed is right for you. Remember, you don't have to cover every bit of ground with grass. Leave the trouble spots for mulches, shrubs, ground-covers, ornamental grasses, or wildflowers. Make future mowing as easy as possible.

WHEN IS THE BEST TIME TO SEED?

For best results, seed from late August through September. Seeding can also be done in April, but there will be a greater competition from growing weeds and less available moisture in May.

HOW TO PREPARE THE SOIL FOR SEEDING

Along with turfgrass seed selection, proper soil preparation is the most important step to a successful lawn. Here's how to prepare your soil:

■ **CLEAN UP** - Eliminate any existing vegetation at the site. You can dig it out, cultivate, rototill it under, or use an herbicide such as glyphosate (sold under the names Roundup or Kleenup). These products kill the plant roots as well as the foliage. As always, read labels carefully and follow the directions.

■ **GRADE** - Grade the soil to slope away from your house to avoid getting water in your basement. Make sure there are no low places for puddles to form. Remove all large stones and any debris.

■ **LIME** - Apply the amount of lime recommended by the soil test and work it four to six inches into the soil. Use dolomite, pelletized, or crushed limestone. The ideal pH range for turfgrass is between 6.5 and 6.7. The fescues can tolerate slightly more acidic pH conditions, 6.0 to 6.5. Soil pH values under 5.5 or over 7.5

limit the availability of certain nutrients. See page 23 for liming recommendations.

■ **FERTILIZE** - Apply 2/3 of the amount of fertilizer indicated by the soil test, and rototill this into the soil along with the lime. A standard recommendation is to apply 15 lbs. of 5-10-10 fertilizer or 7.5 lbs. of 10-6-4 fertilizer per 1000 square feet. This adds 1/2 lb. of nitrogen for every 1000 square feet. (See Appendix D.)

HOW TO READ A BAG OF FERTILIZER

The numbers on a fertilizer bag refer to the amount of nitrogen (N), phosphorus (P), and potassium (K) available. The average lawn requires N-P-K values in the ratio of about 4-1-3. What does this mean? Simply, grass needs four times the amount of N than P and three times as much K as P. (Grass clippings are 4-1-3.)

A bag of fertilizer is rarely labeled 4-1-3. Check the labels and find a similar ratio. For example, 20-5-15 or 8-2-6 would be close. Confusing? Fortunately, most fertilizer bags tell you exactly how much to spread. In Appendix D, there is a chart and directions to help you figure out the correct amounts of fertilizer to apply. Rutgers Cooperative Extension soil test reports also tell you what and how much to apply.

■ **ADD ORGANIC MATTER** - Till at least two to four inches of peat moss, leaf compost, or composted manure into the soil surface.

■ **SPADE OR ROTOTILL** - Work in lime, fertilizer, and organic materials to a depth of four to six inches.

■ **RAKE-SMOOTH AND LEVEL THE SEEDBED** - Remove any clumps and large stones.

APPLYING SEED

For best results, use a drop spreader and seed the amounts indicated on the table in Appendix B. Overlap the seeding in two directions, at right angles to each other, using half the seed each time. Too much seed causes overly dense turf and disease. Too little seed causes thin turf that is prone to weeds.

After you finish seeding, lightly “feather” rake the area. Then, press the seed into the soil lightly with a drum roller, or tamp the soil with a rake or shovel. You can even firm the soil with your feet. This ensures good seed to soil contact and speeds up the growth process.

MULCH

Use a thin cover of salt hay or clean straw (not hay) to conserve moisture, control erosion, and speed up seedling emergence. Floating row cover materials (fabrics that let water and sunlight through) are good alternatives to straw.

WATER

Water your seed lightly — twice a day, if possible. Keep the top two inches of the new lawn moist (not soaked) until the grass is tall enough for its first mowing.



AFTER GROWTH HAS BEGUN... Fertilize again

Two weeks after new grass appears, apply the remaining 1/3 of the fertilizer that was recommended by the soil test results. Typical recommendations are 5 lbs. of 5-10-10 fertilizer or 2.5 lbs. of 10-6-4 fertilizer per 1000 square feet. Water in the fertilizer unless rain is expected soon. This adds 1/4 lb. of nitrogen per 1000 square feet.

CONTROL WEEDS

Treat for weeds only if necessary. Weed control may be needed for spring seeded lawns with past weed problems. Use herbicides such as Brominol or Tupersan, which are labeled for “new lawns only.” Apply herbicide only to the weedy parts (spot treating), not to the entire lawn. Be sure to read the label to ensure proper use.

MOWING

Don't mow a new lawn too soon. Let it grow 3 to 3-1/2 inches high. Then, cut it back to 2-1/2 inches.

ZOYSIAGRASS

A zoysiagrass lawn is usually plugged, not seeded, from mid-May through June. Small pieces (one to two inch squares) of zoysiagrass are planted in a grid pattern at 8 to 12 inch intervals. Press pieces into a similar size hole to obtain good soil contact. A steel plug cutter (or bulb planter) can be used to cut holes in the lawn before planting. Do not allow the pieces to remain elevated. Press them into the soil and water thoroughly. Until the zoysiagrass is established, water it daily for two to three weeks. Fertilize zoysiagrass according to soil test recommendations. One to two weeks after planting, apply more fertilizer and water it in well. It takes a few years before zoysiagrass spreads to fill in an area.



SOD

There are many producers of sod in central and southern New Jersey. Fescue sod is sometimes hard to find. Check the Yellow Pages under “sod” to identify growers in your area.

LAYING SOD

- Prepare the soil for sod the same as for seed.
- Make sure that the soil is moist but not wet.
- Don't let the sod sit around and dry out. Lay the sod down as soon as possible.
- Unfold or unroll the sod strips in place. Lay the sod in a staggered, brick like design. Don't let it overlap, and don't leave space between pieces.
- Roll the sod to make contact with the soil. *This is very important.* Stake down the edges if they roll up.
- After a good-sized portion of the sod is applied, water it thoroughly. Continue to water daily until the sod has knitted to the soil (usually after the second mowing). Give extra attention to the edges around the driveway and walkways, as these areas tend to dry out quickly.
- Mow sod as you would a seeded lawn.

Lawn renovation

Sometimes older lawns become thin and bare. You might want to thicken your lawn by “overseeding,” i.e. laying new seed over the existing turf.

- Before Labor Day, lower your mower blade to the lowest setting and scalp the old lawn.
- Rake or dethatch the area thoroughly, making sure that you loosen the soil that will be seeded.
- Sow the grass seed at 1/2 the normal rate (full rate if the soil is bare). Roll or tamp down the seeded area so that the seeds contact the soil.
- Cover the seeded area with a very thin layer of compost, straw, or floating row cover materials.
- Water the area to keep it moist for about a month, or until the new lawn takes hold. On extremely hot or windy days, water the area lightly at least twice a day.



AVOID USING SEED MATS, which are lightweight mulches filled with seed and fertilizers. Seed mats are supposed to produce “instant lawns,” but they typically use lower quality turfgrass species that are unsuitable for low maintenance lawns.



For more details, call Rutgers Cooperative Extension of Ocean County and request the free bulletin, “Renovating Your Lawn.”



PHOTO: C. MINERS

Maintaining your low maintenance lawn

Follow these guidelines to save time and money on maintaining your new or renovated lawn.

WATERING

In order to have a lush green lawn and landscape, some households waste 40 percent of their monthly water usage outdoors. Yet, a beautiful lawn is not always a healthy lawn. Daily watering can cause shallow roots that could die during water restrictions or pest attacks. Excess watering can also cause thatch buildup and groundwater pollution.

A healthy lawn has deep, well-established roots. The deeper the roots, the healthier the lawn. A deep root system comes from proper watering techniques. The amount of water needed by the lawn varies from season to season. Spring rains cause the growing grass to burst into green. Properly rooted lawns don’t need extra water at this time. Toward the end of May, the top of the soil dries out with the summer heat. When the grass begins to wilt, it’s time to start to water the lawn, if you choose.

Be aware that you don’t have to water your lawn. You can let it go dormant, a perfectly natural state. In most cases, the lawn will recover with the late summer rains. However, if you don’t wish your lawn to turn a dormant straw color, follow these watering directions.

ONLY WATER A THIRSTY LAWN. If the shape of your footprint remains in the grass, it’s time to water.

DO NOT WATER THE LAWN LIGHTLY EVERY DAY. This will only encourage the growth of shallow roots, thatch, and weeds such as crabgrass.

WATER DEEPLY. Lawns in Ocean County require at least one inch of water weekly. Apply 1/2 inch of water twice a week if it hasn’t rained at least an inch that week. If it rains one inch or more, there is no need to water that week.

USE THE RIGHT KIND OF SPRINKLER. There are many different types on the market. The best sprinklers are impact or impulse types with a coarse spray. Avoid sprinklers that spray a fine mist that evaporates before it hits the ground. On the other hand, don’t blast the soil with heavy streams of water.

REGULATING A SPRINKLER SYSTEM

HOW LONG DOES IT TAKE YOUR SPRINKLING SYSTEM TO DELIVER THE REQUIRED ONE-INCH OF WATER?

A simple way to determine this is to place five coffee cans on the lawn. You could also use cut up milk cartons or inexpensive rain gauges. The cans should be placed in the landing pattern of the water from the sprinkler and should be no farther than five feet apart. Turn on the sprinkler for exactly one-half hour. Then, collect the cans and pour all the water into one.

Measure the depth of the water and divide by the number of cans. Since the water was on for only 30 minutes, double this amount to get the hourly rate. Now you know how many inches of water your sprinkling system puts out in an hour. Since the recommended amount of water is one inch per week, you'll need to determine how long to leave your sprinkler on to deliver one inch of water.

If the sprinkler runs 30 minutes, and the total water collected in the five cans is four inches, this would be eight inches in one hour. For one can this is 1.6 inches per hour (eight inches divided by five cans is 1.6 inches per can). How long does it take to apply one inch? Divide 60 minutes by 1.6 inches per hour. This equals 38 minutes needed to apply one inch, or 19 minutes for 1/2 inch.

WATER LAWNS BETWEEN MIDNIGHT AND 8 A.M. Watering after 8 a.m. is not desirable because up to 25 percent of the water evaporates in the heat of the sun. Watering late in the day increases the risk of disease.

WATER SLOWLY. Remember, you want to get the water to reach the deep roots. Slow, steady watering allows the water to trickle through the soil to the root zone. Move the sprinklers around to get even watering.

USE A TIMER. Purchase an inexpensive timer which turns the sprinkler off after the allotted time. Even better, purchase a battery-operated timer that turns sprinklers both off *and* on. Homeowners with an automatic underground watering system should adjust the automatic timer based on the temperature and the likelihood of rain. **CAUTION:** Using an automatic timer often results in overwatering because water is applied even when the lawn doesn't need it. Learn how to shut off your irrigation system.



ZOYSIAGRASS LAWNS do not require as much water as most cool-season lawn grasses. Water zoysiagrass only during extended drought, when the green color fades.



MOWING

DON'T SCALP THE LAWN. Cool-season turfgrasses should be mowed to a height between 2-1/2 to 3 inches. (An exception is zoysiagrass, which should be mowed between 1/2 and 1-1/4 inches.) Scalping the lawn by setting the mower at a lower height inhibits root growth and increases the growth of weeds such as crabgrass. Research indicates that maintaining a mowing height of three inches can reduce crabgrass by 50 to 80 %. A low cutting height also increases the risk of drought and heat injury. Don't merely guess mower height. Measure the height of the rotary blade above the sidewalk using a mowing gauge.

MOW REGULARLY. Don't wait until the grass is high before cutting it. Never clip off more than one-third of the grass blade. Infrequent mowing hinders root growth and stress tolerance.

USE SHARP BLADES. Dull blades cause jagged tears and wounds, which bring about disease. Professionals sharpen mower blades as frequently as every other mowing.

RETURN CLIPPINGS. If the clippings are 1/2 inch or shorter, leave them on the lawn. Decaying grass clippings return a lot of free nitrogen (N) to the soil. Grass clippings can supply almost 1-1/2 lbs. of N per 1000 square feet per year, about 50 % of what is needed. (Adjust the annual fertilizer schedule to allow for the N from the clippings. See Appendix D.)

Clippings longer than 1/2 inch must be removed because they may smother the lawn. Mulching mowers are recommended because they produce finely cut clippings that decay quickly. Mulching mowers work well if the lawn is dry and maintained at the proper height. Clippings from a mulching mower will not produce thatch.

NEVER CUT A WET LAWN. Wet clippings will clump and not disperse. A wet lawn also cannot be cut properly.

PERIODICALLY CLEAN YOUR MOWER. A clean mower will suppress lawn diseases, which may be carried by fungal or bacterial spores on the mower. When you have finished mowing, hose off the lawnmower deck on both the upper and underneath parts.

MOWING ZOYSIAGRASS

Zoysiagrass requires mowing during its active growth period, mid-May through August. It is slow-growing and more attractive when mowed low (1/2 to 1-1/4 inches).

A four-bladed reel mower will provide the best cut for a zoysiagrass lawn. A close mowing in late April will remove brown tips and encourage earlier greening of a zoysiagrass lawn.

AVOID THATCH

Certain types of grasses (e.g., chewings fescue, zoysiagrass) produce thatch, a mat of living and dead turf stems and roots nestled on top of the soil. A thin layer of thatch (1/2 inch) is beneficial, but too much watering and nitrogen can cause an excess of thatch. Dense thatch can prevent water, air, and fertilizer from reaching the soil. It also makes a great home for harmful lawn pests. The grass roots may even begin to grow within the dense thatch. This shallow-rooted grass will thin and eventually die if watering is discontinued during prolonged drought. Thatch makes mowing harder, too.

Dethatching is best done in September or in the early spring. Dethatching works better when you thoroughly water the lawn the night before.

Rake up all the loose thatch (greater than 1/2 inch). Better yet, rent a power rake dethatcher or verticutter, or call a lawn care professional. Dethatching takes time. After you're done, discard the excess thatch brought to the surface.

If thatch growth is somewhat heavy, you (and your neighbors) may want to rent a core-aerating machine from the local garden center. An aerator will pull 1/2" by 3" cores from the

lawn. Use a rake to break up the soil cores that the aerator throws on the lawn. (Professional landscapers drag a small piece of chain link fence to break up these cores.) These broken-up cores help decay the thatch into a topdressing without harming the grass. Core aeration also reduces soil compaction.

FERTILIZING

Well-prepared soil is full of nutrients. However, turfgrass grows quickly, and the supply of nutrients can be exhausted if clippings are removed. In Ocean County's sandy soils, some essential nutrients can be leached out by water as it percolates through the soil. Lawn fertilizer resupplies the nutrients necessary to maintain healthy turf.

If it has been a while since you had your soil tested, now is the time to do it. Ocean County soils tend to be acid, so lime is often needed. However, don't lime or fertilize just because your neighbors do. Add lime only if necessary. Nitrogen is needed each year at the rate of 2-1/2 to 4lbs. per 1000 square feet, depending on the type of grass.

WHEN IS THE BEST TIME TO FERTILIZE A COOL SEASON LAWN?

Rutgers University turfgrass specialists recommend at least three lawn fertilizations per year for Ocean County: early September, mid-October, and mid-May. An optional fertilization can be made in mid-November. (See Appendix D for schedule.)

SLOW-RELEASE FERTILIZERS are applied less frequently. Also, returning grass clippings to the lawn could eliminate one of the fertilizations. More information on fertilizers is included in Appendix D.

APPLY THE BULK OF THE FERTILIZER IN THE FALL. This produces a dense, drought-resistant grass the following year that has deeper roots and fewer problems from weeds and disease. Apply fertilizer when the turf is actively growing. Don't apply too early in the spring. Let the turf use its own stored nutrients first. Excess fertilizer at this time may stress the roots, increase the need to mow, and promote pest damage.

NEVER FERTILIZE DURING THE HOT SUMMER MONTHS. This stimulates lawn growth that uses up extra water and plant energy when the lawn needs to go dormant. It can also increase insect and disease damage. Remember, more is *not* better. Never apply too much fertilizer. Carefully follow your soil test recommendations or those found on the chart in Appendix D.

Zoysiagrass is an exception to the above rule. Zoysiagrass should *only* be fertilized during the summer, when it is actively growing. Late May and mid to late July fertilization is best. Established zoysiagrass requires less fertilizer than most grasses and will endure long periods without fertilization.

HOW TO APPLY FERTILIZER

Avoid uneven lawn coloration from unequal distribution of fertilizer. After you figure out the total amount of fertilizer needed, divide the amount in half. Put this half into the spreader and cover the whole lawn. Now put the other half of the fertilizer into the spreader and apply at right angles to the first application. This avoids burn and unsightly off-color stripes.

LIMING THE LAWN

Turfgrass grows best with soil pH values between 6.5 and 6.7. When the pH falls below these values, liming will raise the pH. Be patient. Lime takes a long time to change the soil pH. Lime can be applied any time that the ground is not frozen. However, the best time to lime is in late summer or early fall. Use your spreader and split the lime into two applications, with the second applied at right angles to the first.



MANY OCEAN COUNTY HOMES HAVE EXTREMELY ACIDIC PINELANDS SOILS. Lime should be used regularly to raise the pH values to 6.5-6.7. Don't over-lime. Refer to your soil test. If it is time for a new test, take a soil sample to Rutgers Cooperative Extension of Ocean County. (See Appendix C.) Do not add more than 50 lbs. per 1000 square feet at one time to an established lawn. If your soil test recommendations call for more than this amount, you can spread one-half of the lime at one time, and add the remainder later.

**MOUNTAIN
LAUREL**



PHOTO CREDIT: USDA, NRCS, 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>) National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

WHAT TYPE OF FERTILIZER SHOULD I USE?

Nitrogen (N) is essential to most plants. Nitrogen fertilizers come in two general kinds – water-soluble and water-insoluble.

Water-soluble N fertilizers, (WSN) are “quick release” fertilizers that release N as soon as they get wet. They are easy and inexpensive to apply.

Examples of WSN fertilizers include urea, ammonium sulfate, and ammonium nitrate. Unfortunately, WSN fertilizers leach away in sandy soil and may run off into nearby streams and lakes. WSN may cause grass to grow too fast or lawns to burn. If you use these fertilizers, apply small amounts at regular intervals. This strategy reduces fertilizer waste and pollution.

Water-insoluble N fertilizers (WIN) are “slow release” fertilizers. These provide a continuous supply of N over a period of weeks or months. They cost more, but the growth of the lawn is more gradual. They also protect the lawn against salt injury, leaching, and overstimulated growth. Look on the bag for terms like “slow” or “controlled release.” Slow release fertilizers include sulfur-coated urea, plastic coated, IBDU, ureaformaldehyde, or methylene urea. Be sure to check the fertilizer bag for the WIN percentage. Purchase 30-60% WIN fertilizers.

Natural organic fertilizers include natural products such as blood meal, fishmeal, cottonseed meal, poultry litter, and composted materials. These products slowly release N as they decay.

Organics require heavier applications than conventional fertilizers and cost more. However, organics last longer than conventional fertilizers and generate less pollution.

Chapter III



CONTROLLING LAWN PESTS: insects, diseases and weeds

INTEGRATED PEST MANAGEMENT (IPM) AND LAWNS

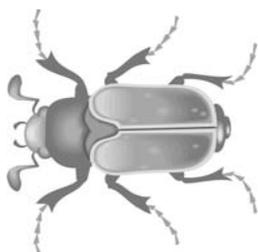
OCEAN COUNTY SOIL CONSERVATION DISTRICT AND RUTGERS COOPERATIVE EXTENSION RECOMMEND INTEGRATED PEST MANAGEMENT (IPM) METHODS TO CONTROL HARMFUL LAWN PESTS. Horticulturists not only define insects as “pests,” but weeds and plant disease as well. IPM is the use of “environment friendly” landscaping methods to prevent and control pest damage. IPM methods seek to prevent pest attacks. If pests reach damaging levels, they can be managed in a variety of ways. Pesticides are only used if necessary, and the least toxic product is chosen.

TWO IMPORTANT IPM LAWN CARE METHODS are planting the right type of grass seed, and properly preparing the soil. There is a full discussion of other IPM methods in the chapter entitled “IPM Landscape Pest Control” on page 32. Some lawn care professionals use IPM methods but call it something different such as “Plant Health Care.” Below is a short summary of IPM methods for maintaining your lawn.

The most important step in IPM is monitoring. Monitoring, by performing a regular inspection of your lawn, allows you to locate pests early. They are easier to control and haven't caused as much damage. Check the lawn for signs of problems every time you mow. With bi-weekly inspections of your lawn, you can see if the problem is getting worse or if your control method is working.

Make sure you correctly identify your lawn problem. Don't guess, and don't just spray the pesticide you have in the garage to see if it will stop the problem. Have the problem diagnosed by professionals at Rutgers Cooperative Extension and follow their advice.

Decide whether you can “live with” the disease or insect infestation. How much trouble is it going to cause? For example, by late summer, the pest may finish its life cycle and go away without causing too much damage. It may be better to tolerate some damage that is not life threatening to the lawn. Then, you can repair the lawn at the proper time.



IPM ALTERNATIVES TO PESTICIDES

PHYSICAL AND HORTICULTURAL CONTROLS: These controls improve turf health so the grass can better withstand pest attacks. For example, the addition of a little fertilizer will curtail certain diseases such as dollar spot and red thread. Mowing three inches high minimizes other diseases and reduces crabgrass.

BIOLOGICAL CONTROLS: These are nature's natural checks and balances. “Beneficial” insects, such as spiders and beetles, kill the pest insects and eat their eggs. Beneficial fungi, nematodes, and bacteria, such as Milky Spore and Bt are also commercially available.

BIORATIONAL PESTICIDES: Biorational pesticides are low toxicity products considered environmentally safe. Horticultural oil, insecticidal soap, corn gluten meal, and other products are biorational. These products work best on small, immature pests. Follow label instructions for best results. Many biorationals have little residual action, so multiple applications may be necessary.

Professional landscapers have access to some fast-acting, low toxicity pesticides that are unavailable to the public. Some of these products prevent insects from molting. Other pesticides are absorbed by the foliage and kill after being ingested by the pest. Call a qualified landscaper to assist with severe pest problems.

DIAGNOSIS: Determine what caused the pest outbreak in the first place. Often, several causes (weather, water, mowing, fertility) work together to cause the pest population to build up. Target those causes and correct the situation in order to prevent pest attacks (and pesticide use) in the future.

CONVENTIONAL PESTICIDES

Sometimes, conventional pesticides are needed to control pests. Many pesticide labels may state that they control a particular pest, but some pesticides are more effective than others. Check with Rutgers Cooperative Extension to determine the best product to control your pest. Pesticides should not be sprayed on the entire lawn “just in case.” This is not an ecologically sound practice.

Never spray just because you did at the same time last year. Make sure that the pest is present and properly identified before you spray. Spray only the infected area, not the entire yard. This saves time, pesticides, and money.

CONTROLLING WEEDS IN THE LAWN

Lawn weeds are either “broadleaf” or “grassy.” Broadleaf

weeds have broad leaf blades. Dandelion, clover, spurge, and plantain are examples of broadleaf weeds. Grassy weeds have thin leaf blades. Goosegrass and crabgrass are grassy weeds. *Different controls are needed for these two different types of weeds.*

Weeds are symptoms of problems in the lawn. In general, weeds flourish in bare spots and weak, thin turf. *The best defense against weeds is a healthy, thick lawn.* Therefore, reduce weeds by keeping the turfgrass dense and mowing high (3 inches). Research has shown that high mowing will shade low-growing weeds to keep them from developing. Dormant weed seeds that are shaded under a high mowing regime tend not to germinate. Frequent high mowing may also cut off seed heads and growth points of certain weeds, slowly reducing their numbers.

HERBICIDES ARE PESTICIDES USED TO CONTROL WEEDS. Herbicides may kill the weeds but will not correct the underlying problem. Individual weeds take advantage of unhealthy site conditions that impair turfgrass growth. (See Figure 1.) These unhealthy site conditions include soil compaction, improper fertilization, drought, and improper mowing.

Figure 1

ENVIRONMENTAL CONDITIONS PREFERRED BY SPECIFIC WEEDS

WEED	CONDITIONS PREFERRED
common chickweed	→ shade, poor drainage, light and frequent watering
knotweed	→ compact soils
black medic	→ dry soil, high P
henbit	→ moist, fertile soil
violets	→ shade; cool, moist soil

(Source: Shultz, W., *The Chemical Free Lawn*)

After the weed is identified, determine if there are too many weeds to live with. You probably won't tolerate a lawn that's more than 25% weeds. Before treating weeds, determine the best time of the year to control them. For example, dandelion is best controlled in the fall when the plant is immature, not in the spring when it flowers. (See Figure 2.) Weeds can be killed more efficiently when they are small and less herbicide is needed.

Figure 2

BEST TIMING TO CONTROL CERTAIN BROADLEAF WEEDS

<u>WEED</u>	<u>CLASSIFICATION*</u>	<u>TREATMENT TIMING</u>
black medic	A,B,P	April-May
buttercup	WA,B,P	October-November
chickweed	WA, P	October-November
white clover	P	October-November
dandelion	P	October-November
wild garlic	P	October-November; February-March
ground Ivy	P	April-May
henbit	WA	October-November
knotweed	SA	March-April
lambsquarter	SA	April-May
plantains	P	October-November
purslane	SA	May-June
red sorrel	P	October-November
spotted spurge	SA	May-June
violet	P	April

*A=annual; B=biennial; P= perennial; SA= summer annual; WA= winter annual

(Source: J. Derr, VPI & SU, 1998)

PHOTO: C. MINERS



USING HERBICIDES

Herbicides are compounds designed to kill weeds. There are two types. Pre-emergent herbicides kill weeds *before* they emerge. These are often used for grassy weeds. For example, crabgrass is a weed that germinates in the early spring. The right time to use a crabgrass pre-emergent herbicide, therefore, would be late April.

Post-emergent herbicides kill weeds *after* they come up. These are best used when the weed plant is small and immature. The weed is easier to kill at this point, and it takes less herbicide to do so. Post-emergent herbicides are primarily used for broadleaf weeds. They are usually not as effective in killing grassy weeds. Post-emergent herbicides kill actively growing weeds.



For perennial weeds, use non-residual herbicides such as Kleenup, Roundup, or Finale. Be careful. These chemicals are non-selective herbicides that kill any plant leaves they touch. *Read the label!*

Pre-emergent herbicides prevent weed seed germination. They control annual grasses and/or broadleaf (perennial and biennial) weeds in shrub plantings, lawns, vegetable gardens, and flower beds. When applied according to label directions, they are safe on nearly all ornamental plants.

USE ONLY RECOMMENDED HERBICIDES

Before you buy any herbicides, you must identify the weed. Although an herbicide label may state that it controls a particular weed, some herbicides are more effective than others. Rutgers Cooperative Extension will gladly recommend the proper herbicide. Spot treat only the weeds. Treat with the least toxic herbicide that will control the specific weed.

- Make sure that the herbicide you buy is labeled for the weed you want to kill. Some weeds are resistant to common herbicides.
- Use as little herbicide as possible to treat the problem. It is very important to carefully read the instructions on the bag or bottle of herbicide. Mix only the amount suggested by the label.
- Different diseases and pests require the use of different chemical pesticides. All are toxic so treat them with respect. Carefully follow all the label directions.

LEAST-TOXIC HERBICIDES include herbicidal soaps and corn gluten meal. Herbicidal soaps are potassium-based soaps that dry up the weeds. Unfortunately, they are non-selective, so they will kill desirable plants as well as weeds. Use herbicidal soap for spot treatments, applying it carefully with a spray bottle. You may need more than one application to do the job.

CORN GLUTEN MEAL MAY BE USED AS A PRE-EMERGENT HERBICIDE TO CONTROL GRASSY AND BROAD-LEAF WEEDS. You will have to make several applications. If you use corn gluten meal for weed control, it will also provide nitrogen, perhaps as much as one application of lawn fertilizer.

SPOT TREAT INDIVIDUAL WEEDS, IF POSSIBLE. You may not have to treat the entire lawn with the herbicide. When treating a grassy weed problem, treat only the infested area. This saves time, money, and herbicide. Use only the amount suggested on the label. More is never better for your lawn, your health, or the environment.



REMEMBER THESE RULES:

- DON'T APPLY PESTICIDES if the temperature is higher than 85 degrees or if it is windy. Weather conditions and time of day affect pesticide effectiveness.
- WEAR PROPER PROTECTIVE CLOTHING and eye covering when applying pesticides.
- PURCHASE ONLY THE AMOUNTS NEEDED for one season. Don't store pesticides for years.
- DISPOSE OF OUTDATED CHEMICALS during Ocean County's household hazardous waste collection days. Call the Ocean County Department of Solid Waste Management for more information, (732) 506-5047.
- PESTICIDES SHOULD BE LOCKED UP and out of reach of children, pets, and unauthorized persons, to avoid possible poisoning.

Chapter IV



ALTERNATIVES TO THE HOME LAWN: flowers, trees and shrubs, groundcovers, and ornamental grasses

REDUCE YOUR LANDSCAPE'S WATER REQUIREMENTS

OCEAN COUNTY'S MOSTLY SANDY SOIL WILL NOT RETAIN WATER. Ornamental plants and turfgrasses that require little water are ideally suited for this condition. Xeriscaping – low water use landscaping – conserves water through proper landscaping methods. It focuses on the selection of drought-tolerant plants and encourages the reduction of turf area. *Turfgrass is your landscape's greatest consumer of water.* If you want to reduce your landscape's water requirements, plant more ornamental plants and *less grass*.

USE MULCH TO CONSERVE WATER AND REGULATE SOIL TEMPERATURES. Mulch defines a planting bed and separates the lawn from plantings in landscape design. Use three to five inches of organic mulch such as wood chips, shredded bark, or conifer needles. Don't use lawn clippings that have been treated with an herbicide. Don't use peat moss, which often dries up and blows away. Straw and pine needles may be flammable, especially in Pinelands areas where fire is a constant threat. Non-organic mulches include crushed stone and polyester fabric.



**OAKLEAF
HYDRANGEA**

PHOTO CREDIT:
USDA, NRCS.
2004. The PLANTS
Database, Version
3.5
(<http://plants.usda.gov>). National
Plant Data Center,
Baton Rouge, LA
70874-4490 USA.

CHOOSING PLANTS

THREE TIPS ON PLANT CHOICE

- Choose suitable plants from the lists in Appendix B. These include both native and non-native plants that have adapted to our local climate and soil conditions. These “xeriscape” plants require minimal maintenance and tolerate drought.
- Remove invasive plants. Invasive plants grow rapidly and drive out plants in other locations. Common invasive plants include mint, bamboo, and Japanese barberry.
- Choose the right plant for the site. Determine the plant's sun and shade requirements. For example, don't plant a rhododendron in full sun. It is native to the forest understory and placement in full sun will make it more susceptible to pest problems.

FLOWERS

Flowers are a good alternative to lawns. Not only will they beautify your landscape; flowers attract the beneficial insects that kill harmful insect pests.

Perennials

Perennials are flowers that come back every year. Perennial flowers are attractive, low maintenance plants. Many perennials spread quickly to form a dense lush bed of flowers. They shade out most weeds and are easy to take care of. Each perennial variety has its own specific blooming period.

Select perennials that are suitable for your site, sunlight, shade, and watering conditions. Plant a variety of perennials that bloom in different seasons so that you will have continuous bloom and color. Plant perennials in groups of three or six. Divide them every three to four years to keep them from overcrowding.

Annuals

Annual flowers, plants that live only one year or season, are another good alternative to turfgrass. Plant them in masses of one color in beds. Select only those which can withstand the extremes of summer's heat. Restrict them to small grouped areas in front of the house where they can be watered efficiently. Annuals require a lot of water.

Plan flowerbeds for annuals and perennials.

■ Draw out bed lines using a line of lime or rope, a flexible garden hose, or even twine. Bed lines can be straight, curved, or circular. Curved lines make more interesting designs. Group flowers together in beds according to their watering requirements, height, and blooming season. For example, separate drought-tolerant perennials from water-hungry annuals.

■ When choosing flower colors, remember the artist's color wheel. Flowers with warm colors (reds, yellows) do well in full sun and appear larger and closer in the design. Cool color flowers (blues and violets) do better in shady spots and will appear farther away.

■ Place the smaller flowers with a height of 12-18 inches in front. Place the flowers that grow 18-30 inches high farther back, the tallest being placed along the back of the border. To prolong the blooming season and spur new flower growth, remove any dead flowers (deadheading). Some annuals, such as begonia and torenia, do not require deadheading for perpetual bloom.

Wildflowers

Wildflowers are perfect for sunny places at the rear of the property, along fences, and next to streams. Wildflowers require less care than more traditional plantings. Besides reducing lawn area and water use, you'll have a colorful landscape that is a habitat for many beneficial insects, birds, and small animals.

It takes about three years to establish a wildflower garden. The annual wildflowers will dominate the first season, and the others will catch up in a couple of years.

Planting and maintenance of wildflowers

■ SEED SELECTION: Choose fresh seed.

Wildflower seed mixtures should contain a large assortment of annuals, biennials, and perennials. This will assure that your garden will bloom from spring through autumn. Wildflower mixtures typically contain seeds for 40 to 60 different types of plants. After a couple of years, those best suited will dominate the landscape, growing almost wild and needing only limited maintenance. If there are no hard or sheep fescues in the seed package, mix in about 1/2 ounce of fescue seed for every 1000 square feet coverage of wildflower seed.

■ PLANTING: Plant wildflowers as soon as the soil can be worked in the spring. Rake the soil lightly. Then tamp the seedbed lightly to ensure seed contact with the soil.

■ MAINTENANCE: Mulch wildflowers with salt hay, straw, or a floating row cover. Water the flowers thoroughly, keeping the soil moist for the first six weeks. Weed control can be tricky, especially during establishment. Remove only those plants that you are sure are weeds. If you are not certain, leave the plants alone until they are more mature. Don't fertilize wildflowers. In properly prepared soils, most wildflowers don't need fertilizer. In November, cut wildflower plantings to a height of four to six inches. This is not a job for the lawn mower. Use a scythe or hedge clipper. Leave the clippings wherever they fall. This will replenish the supply of nutrients. Reseeding is recommended during the first three years. In March or September, rake the bare spots, sprinkle the new seeds, tamp lightly, and keep the area moist. If you wish to extend the blooming season, remove any dead flowers so that new ones can bloom (deadheading).

Fertilizing flowers

Annuals

■ Fertilize before planting by adding two to three lbs. of 10-6-4 fertilizer per 100 square feet and mix into the top six to eight inches of soil. Water in thoroughly.

■ In mid-season, spread one lb. 10-6-4 fertilizer per 100 square feet evenly on top of the soil (topdressing). Scratch this into the soil and water in thoroughly.

Perennials (established)

■ Fertilize when the plant roots are actively growing (usually early spring or early summer) as a topdressing.

■ In March, spread two lbs. of 5-10-5 fertilizer per 100 square feet evenly on top of the soil. Scratch this into the soil and water in thoroughly. Repeat twice at six-week intervals.

Avoid getting fertilizer on the flower leaves. Don't apply fertilizer during times of extreme temperatures or drought.





*Ornamental
grasses and
blueberry bushes
are ideal for
Ocean County.*

TREES and SHRUBS

Trees and shrubs are another great alternative to turfgrass. Native trees and shrubs, or those plants that have adapted to Ocean County's sandy soil, are the best choices. These plants avoid insect and disease problems, having developed natural defenses against common pests. Remember to select trees and shrubs from the lists in Appendix B.

PLANTING

SOIL PREPARATION

This is the most important part of planting. You can start in the spring or wait until the early fall. Soil preparation for planting ornamental trees and shrubs is the same as for a lawn (see page 14).

SPACING

For best results, large shade trees (e.g., pin oak) should be placed about 50 feet from one another. Medium sized trees (e.g., river birch) should be spaced 35 feet apart. Smaller trees (e.g., kousa dogwood) should be placed 15 feet apart.

- A good rule of thumb is to plant trees about 20 to 30 feet from the foundation of the house.

- Locate large trees at least eight feet away from curbs and sidewalks.

- Allow at least a 12 x 12-foot soil area for each tree's growth.

- Do not place shrubs and hedges too close to each other or to buildings. Find out how high and wide the shrub will grow. Try to leave at least three feet between the foundation and the plantings. If your bed size is limited, use dwarf varieties of your favorite trees and shrubs.

- To reduce mowing, place trees, shrubs, and flowers in mulched, contiguous beds. Avoid narrow strips of turfgrass between beds. Don't place trees and shrubs where you might someday build a deck, patio, or pool.

If you only have room for one large tree, place it on the south or southwestern side to protect your home from the heat of the late afternoon sun. The sun's rays will be lower in the sky than at midday, so set the tree about 20 to 30 feet from the house. On more roomy landscapes, try three large trees on the southern exposure. One or two evergreen trees in the northwest exposure can block winter winds.

WHEN TO PLANT

- **DECIDUOUS TREES** (those which drop their leaves): Plant these either in the early fall or early spring (before budding).
- **NEEDED EVERGREENS** (e.g., narrow-leaf evergreens like yews and cypress): Plant these in the early spring.
- **BROAD-LEAF EVERGREENS** (holly, azalea, laurel, etc.): Plant these in the early spring.
- **BARE ROOT PLANTS** (e.g., roses): Plant these during the dormant season (late winter or early spring).

HOW TO PLANT

- Dig the planting hole as deep, or slightly less deep, than the height of the root ball. The width of the hole should be at least three times the diameter of the root ball. (See Figure 3.) Soil amendments (compost, manure, peat) aren't necessary, but you may wish to add these to the soil used to fill in the hole. If so, no more than one-third of the backfill should be organic matter.
- Place the tree or shrub in the planting hole. Lay a shovel handle or flat board across the hole opening. Use this as a guide for soil height. If the plant is balled and wrapped in burlap, roll back the burlap from around the ball and bury it under the soil. Completely remove plastic, synthetic, or treated burlap and properly discard it.
- Plants in pots or containers should be watered thoroughly. Then tap the plant out of the container. Use a shovel to cut an "X" on the bottom of the root ball and spread the roots out in the planting hole.
- For bare root plants, follow the label planting directions. Form a cone of soil in the planting hole, then place the roots around the cone before filling the hole.
- After planting, fill the hole about half full with the soil. Tamp the soil down lightly. To reduce air pockets, fill the remaining hole with water. After the water has drained, add the remaining soil and tamp it lightly. Water again. Around the edge of the hole, construct a two to four inch high ring of soil to hold in irrigation water.
- Add three inches of organic mulch around the tree, several inches from the trunk to the drip line (the length of the branches). Do not allow the mulch to touch the tree or shrub bark.

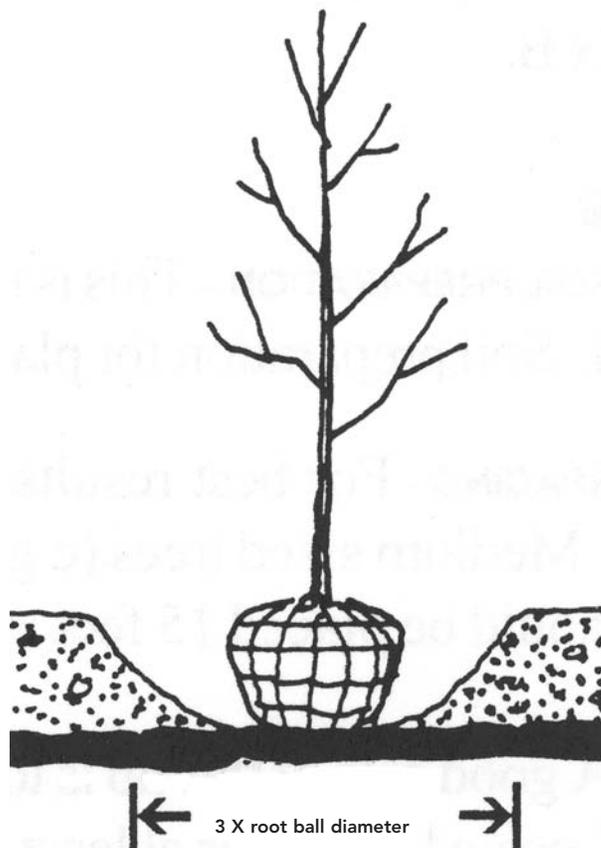
- Do not add fertilizer at planting. Too much fertilizer can harm the tree or shrub.
- Prune only dead, damaged, or diseased branches. Prune back to a branch or bud. Never leave stubs.
- Water at least twice a week for the first two months and during hot weather.

AVOID STAKING TREES AND SHRUBS, if possible. Attaching a stake to straighten a plant can weaken the trunk or damage the bark. However, if a tree is too tall to stand alone, or has a weak root system (e.g., a bare root tree), it should be staked. Remove the stakes after one year. Tree wrapping is not recommended.

Figure 3

THE PLANTING HOLE

Dig the planting hole as deep or slightly less deep than the height of the root ball.



ADAPTED FROM THE NATIONAL ARBOR DAY FOUNDATION

FERTILIZING

established trees and shrubs

Some trees and shrubs are grown for their foliage, others for their flowers and fruit. It is important to choose the right fertilizer for each, and to apply it at the right time with the best method.

HERE ARE SOME TIPS:

- Avoid fertilizing new plantings during the first year.
- For established plants, use fertilizers with N-P-K ratios of 5-10-5, 10-6-4, or 10-10-10.
- Fertilizer is not required if the trees or shrubs grow six inches or more per season.
- Established trees and shrubs need fertilizer every four to five years, depending on their growth rate.
- Trees bordering established fertilized turf might never need extra fertilizer. Runoff from lawn fertilizer will feed the trees.
- You can spread fertilizer on the surface soil around plants (topdressing). Use a spreader to cover the entire root zone, the circular area that extends several feet beyond the branch spread (drip line) of the tree or shrub. Lightly scratch the fertilizer into the soil. Water thoroughly.
- You can also put the fertilizer under turf covered soil. Poke a screwdriver or bulb planter into the soil throughout the root zone, starting about two feet from the trunk. Make the holes 6 to 12 inches deep and 12 to 24 inches apart. Go to about three feet beyond the drip line. Mix the fertilizer (see next section for amounts) with perlite, peat moss, or sand, and fill the holes. If you prefer, a fertilizer spike could be used instead.



Figuring out how much fertilizer to apply can be tricky. Too much fertilizer causes lush growth and leads to attacks by diseases or insects. Too little fertilizer will limit plant health and growth. Test the soil to determine how much fertilizer to apply, and be sure to water in the fertilizer after each application.

FERTILIZATION GUIDELINES for trees and shrubs

FOR DECIDUOUS SHRUBS (e.g., forsythia, abelia, viburnum, and spirea) and narrow-leaf evergreen shrubs (e.g., juniper, yew, false cypress), apply fertilizer in March or April. Spread evenly on top of the soil. Use a 30-60% WIN slow release fertilizer. (See sidebar, page 19.) Apply 0.2 lbs. (1/5 lb.) N per 100 square feet (e.g., two lbs. of 10-6-4 per 1000 square feet).

FOR DECIDUOUS TREES (e.g., oak, maple, sycamore) and evergreen trees (e.g., pine, spruce), apply fertilizer in late October or early spring (March-April). Use a 30-60% WIN slow release fertilizer. The amount applied depends on the trunk diameter. Apply one lb. of 10-10-10 per inch of diameter.

FOR BROAD-LEAF EVERGREENS (e.g., azalea, rhododendron, mountain laurel, andromeda, holly, mulching annually with one to three inches acid type mulch (pine needles, bark chips, leaf compost) may reduce the need for additional fertilizer. If you fertilize, do so in the early spring, when growth starts. Use a 30-60% WIN slow release fertilizer (10-6-4 or 10-10-10) in late March (1 lb. per 100 square feet) and late May (1 lb. per 100 square feet).



If new leaves turn yellow with green veins (chlorosis), correct the soil pH. Apply a water-soluble fertilizer that contains iron sulfate or iron chelates.

Specialty Fertilizers

Water-soluble fertilizers (such as Miracle Gro) are quick-release products that are mixed with water and applied directly to the foliage. These offer only temporary relief of nutrient deficiencies. If it rains, or if the plants are watered within 48 hours of application, unabsorbed nutrients are washed off the plant and may end up in Barnegat Bay.

The best use for water-soluble fertilizers is as starter solutions for vegetable and flower transplants. Fertilizer solutions also temporarily correct nitrogen and iron deficiencies, especially during the high nutrient demand times of the flowering-fruit stages of some vegetables and flowers.

Figure 4

HOW TO MAKE A PRUNING CUT

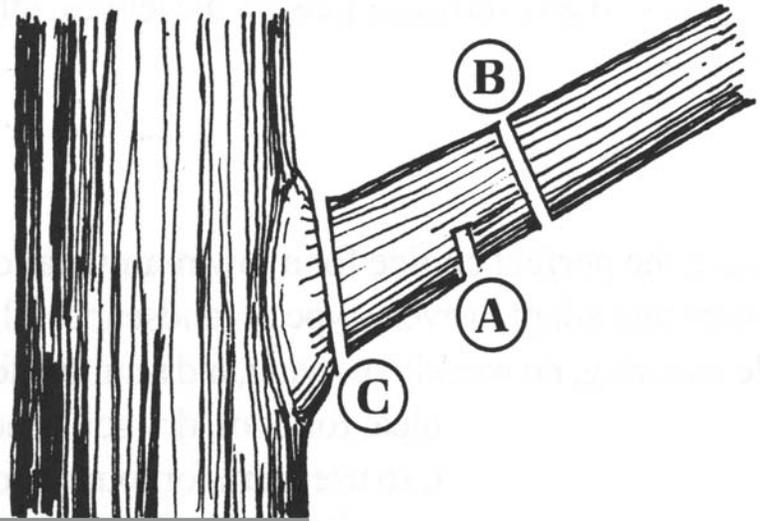
PRUNING LARGE LIMBS

Large, heavy limbs could tear loose during pruning, stripping bark and creating jagged edges that invite insects and disease. That won't happen if you follow these steps:

A: Cut part way through the branch from beneath, at a point one or two feet from the trunk.

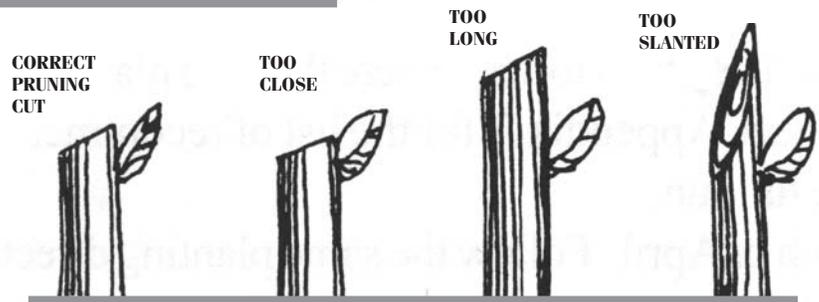
B: Make a second cut on the top of the branch, several inches out from the first cut. This should allow the length of the limb to fall from its own weight and be safely removed.

C: Complete the job by making a final cut next to the trunk, just outside the branch collar, with the lower edge farther away from the trunk than at the top.



PRUNING SMALLER LIMBS

Smaller branches should be cut just beyond a lateral bud or another small lateral branch. The ideal cut is sharp and clean and made on a slight angle.



ADAPTED FROM THE NATIONAL ARBOR DAY FOUNDATION

PRUNING TREES and SHRUBS

Pruning stimulates the growth of new wood and flowers, trains new plants to develop special shapes (e.g., hedges), and is also frequently used to restrict plant growth.

WHEN TO PRUNE

The best time to do major pruning on most trees and shrubs is late winter or early spring, before new growth begins. Don't prune in late summer. *The following exceptions should be noted:*

- Spring flowering shrubs (e.g., lilacs, azaleas) are pruned just after blooming occurs.
- Broad-leaf evergreens (e.g., holly, inkberry, boxwood) and narrow-leaf evergreen shrubs (e.g., junipers, false cypress, yew) are pruned after spring growth in late May or early June.
- Narrow-leaf evergreen trees (e.g., fir, pine, spruce) are pruned to control growth. Remove half of the current season's growth in late June.

HOW TO PRUNE

- When pruning tree branches, cuts should be on an angle. Never cut the branch flush with the trunk and never use wound paint. To avoid tearing bark tissue, use three cuts to remove a large branch. (See Figure 4.)
- Hedges should be pruned the first year after planting. Cut hedges back to 10 inches above the ground. Shear a hedge so that the base is wider than the top. Otherwise, the bottom branches won't get enough light resulting in a twiggy, sparse base. Every three or four years, remove old wood from the center of the hedge.

GROUNDCOVERS

Groundcovers are another good choice for the low maintenance landscape. There are groundcovers suitable for every condition — full sun, partial sun, full shade, wet, or dry. (See the plant list in Appendix B.)

PLANTING AND MAINTENANCE

■ Do not crowd the plants together. Space most plants one to three feet apart. Groundcovers such as English ivy and pachysandra are usually planted one foot apart. Space cotoneaster, juniper, and wintercreeper euonymus three feet apart.

■ Make planting holes two to three times the width of the plant's container, but slightly shallower than the depth of the roots. Loosen the roots and spread them apart before planting. Apply a starter solution of water-soluble fertilizer. Shape a little trench around each plant to retain water.

■ Water thoroughly at regular intervals. Use a drip system or soaker hoses for best results. Follow the directions in the lawn watering section on page 17.

■ Mulching will help control weeds and keep moisture from evaporating during the establishment period. Spread two to three inches of organic mulch over the soil between the plants. Keep the mulch away from the plant stems.

■ If you mulch with wood chips, apply fertilizer annually. A light top dressing of granular 10-6-4 fertilizer will replace the lost Nitrogen. Mulch steep banks with straw or salt hay before you plant. Do not use plastic mulch.

■ To kill weeds, use a post-emergent herbicide suitable for those weeds. Call Rutgers Cooperative Extension for an herbicide recommendation.

■ If you don't have recent soil test results, apply two lbs. per 100 square feet of 5-10-5 or 10-6-4 fertilizer (in March) for the first two or three years. If any fertilizer gets on the leaves, remove it with a broom or wash it off with water.

ORNAMENTAL GRASSES

Ornamental grasses are the perfect choice for a low maintenance landscape. They come in a dazzling array of sizes, shapes, and colors, and adapt to every type of landscape. The seed plumes are especially attractive.

There are many ornamental grasses suitable for Ocean County and the Barnegat Bay watershed. They need little watering, no weekly mowing, and minimal fertilizer. These grasses flourish in every soil type, no matter what the pH and drainage and are ideal for poor, dry soils. They are also largely free of insects and disease. Some ornamental grasses grow as high as seven feet, so use them for foundation plantings, color accents, wind-breaks, or screens.

PLANTING AND MAINTENANCE

Select clumping (bunch) grasses. They tend to stay where they are planted. Running (creeping) grasses need room and should be avoided. Check Appendix B for the list of recommended ornamental grasses.

■ Locate ornamental grasses in the full sun.

■ Plant ornamental grasses in March or April. Follow the same planting directions for groundcovers and perennials. Most ornamental grasses need two seasons to become fully established.

■ The space between plants should match their mature height. Prepare the soil by working organic matter into the top six to eight inches of the soil.

Once established, ornamental grasses need little care. Follow these guidelines:

■ Water only in times of extreme drought.

■ Fertilization is optional. Applying too much fertilizer with N produces weak foliage and susceptibility to pests. You could apply a light topdressing of 10-6-4 fertilizer in the early spring, after growth begins.

■ Cut back the grasses in early March, before the new growth begins. Cut back to 2/3 of the full size (e.g., cut a three-foot grass back to two feet).

■ Eventually, you may want to divide the clumps. Do this in early spring.

 *Whirligigs and other lightweight objects that blow in the breeze keep birds from harvesting your berry crop.*





Chapter V IPM LANDSCAPE PEST CONTROL

INTEGRATED PEST MANAGEMENT

Traditionally, many homeowners and landscapers apply certain pesticides at specific times of the year, whether or not any pests are present. This unnecessary pesticide use may lead to environmental problems. Herbicides, insecticides, and fungicides can leach into our groundwater or run off into the bay. Pesticides can also kill “beneficial” insects that normally feed upon harmful insects. To make matters worse, insect pests often develop resistances to certain pesticides.

HOW, THEN SHOULD WE MANAGE PESTS?

The Ocean County Soil Conservation District and Rutgers Cooperative Extension recommend using Integrated Pest Management (IPM), the “environment friendly” alternative to conventional insect and disease control. IPM includes an assortment of pest control practices linked together (integrated) to manage various landscape problems. Instead of relying upon chemical pesticides to control pests, IPM uses physical, mechanical, biological, and cultural control methods first. Pesticides are used as a last resort. Even then, the pesticides initially selected are the least toxic (biorational) to the environment, people, and pets. By controlling pests early, IPM methods prevent unsightly plant damage.

IPM THEORY

IPM begins when you initially plan your landscape. Choosing the right plants and locating them in the right place keeps them healthy and able to withstand pest attacks. IPM also stresses efficient horticultural practices that keep plants healthy – *proper watering, fertilizing, mowing, and pruning*. If you follow the plant establishment and maintenance guidelines in this guide, you will have a healthy lawn and landscape that is less susceptible to pest problems.

IPM PRACTICE

The heart of IPM is the early detection and prevention of pests. Horticulturists not only define insects as “pests,” but weeds and disease, as well. At least twice a month, walk through your landscape and monitor your plants for trouble spots. Observe which plants appear healthy and which do not. Write down your observations. If you have a site plan, make notations on it. Collect small dying branches, discolored leaves, and any insects you come across. These can be diagnosed at Rutgers Cooperative Extension.  If you have extra time, you might want to note the population levels of both beneficial insects and pests, the weather conditions, and sun/shade patterns.

Identify the *key plants* that have the most pest problems.

■ Key plants in Ocean County include the azalea, crabapple, dwarf Alberta spruce, rhododendron, Japanese euonymus, rose, flowering cherry, white birch, mugho pine, dogwood, juniper, and hemlock. If these plants are weakened by environmental stress, or if large numbers are planted in one area, they are susceptible to pest attacks. If you have other plants that always have problems, add them to your list.

Pests that are a continual problem are called *key pests*.

■ These pests often have no natural enemies and account for the majority of pest problems. (See Appendix E for key pest monitoring and control recommendations.)

At some point, you will have an insect, disease, or weed problem. What should you do?

■ Correctly identify the pest. Contact Rutgers Cooperative Extension or a landscape professional to find out exactly what the pest is. If the pest will cause little damage, you should be able to live with it. Just because a pest is a nuisance doesn't mean it is a real threat to your landscape.

The goal of an IPM program is to limit the number of insects, disease, weeds, and fungi in your lawn and garden. By restricting insect pests to low levels — not exterminating every single pest with chemical pesticides — naturally occurring beneficial organisms will have something to eat, and will stick around in your landscape.



It is not realistic to expect to have a landscape always totally free of insects, disease, and weeds. Instead, use simple IPM practices to minimize these problems. If you need help with these instructions, or help locating suppliers, call or visit Rutgers Cooperative Extension (see Appendix A).

BEFORE YOU ATTEMPT ANY PEST CONTROLS, MAKE SURE THAT YOU HAVE OBSERVED ENOUGH TO KNOW THE FOLLOWING:

Which pests are present?

Can you estimate how many?

Where on the plant are the pests?

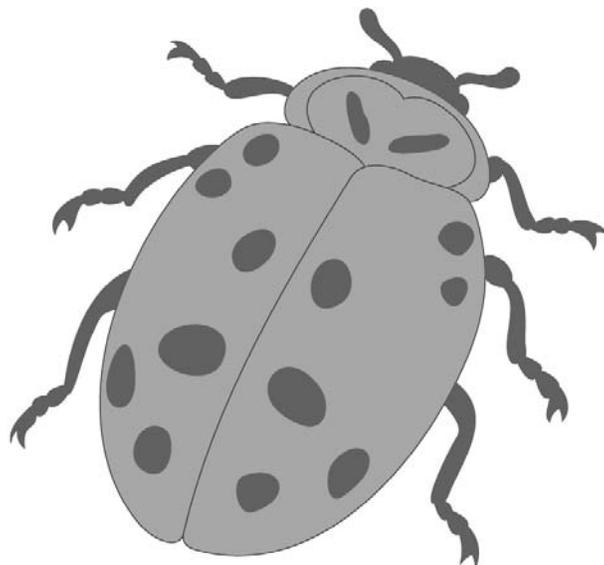
Are beneficial insects present?
(e.g., lady beetles, spiders)

At what stage is the pest?

Is it susceptible to controls at this time?

How many plants are infested?

What is the least toxic method of controlling this pest?



CULTURAL CONTROLS

It is important to start with healthy, vigorous plants and turf. This is a perfect example of the old adage, “an ounce of prevention is worth a pound of cure.” Use these horticultural practices to keep your lawn and landscape healthy:

- **MOW YOUR LAWN THREE INCHES HIGH** and leave clippings on the lawn. Measure the turf thatch height and dethatch if greater than 1/2 inch. Aerate the soil if it is compacted. This minimizes crabgrass, other weeds, and some diseases.
- **ADD TWO TO THREE INCHES OF MULCH** around your plants. This reduces weeds and helps retain water.
- **CONSIDER REPLACING A PROBLEM PLANT** with a pest-resistant variety. This may cost more initially, but you will save time and money in the long run.
- **PLANT OR OVERSEED A THIN LAWN** with endophyte-enriched turfgrasses. These help prevent future pest attacks.
- **USE LOW MAINTENANCE NATIVE PLANTS** or those that have adapted to our area. Plant drought-tolerant and pest-resistant varieties.
- **DON'T OVER FERTILIZE PLANTS.** Too little fertilizer is usually better than too much.
- **IF POSSIBLE, AVOID WETTING THE FOLIAGE** during watering, especially late in the day. Water the roots and the surrounding soil.
- **WATER NEWLY PLANTED TREES AND SHRUBS** at least twice a week for the first two months and during hot weather. Drip irrigation is the most efficient watering method.
- **AVOID INVASIVE PLANTS** (e.g., purple looserife, Japanese honeysuckle, silver maple, reedgrass, Russian olive, multiflora rose, bamboo).
- **DON'T LANDSCAPE LARGE AREAS** with the same plant (monoculture).
- **SPACE PLANTINGS** so that light and air can circulate. This will help prevent fungal diseases.

- **SAVE ENERGY** by planting shrubs on the western and southern sides to shade the walls of your home. Deciduous trees on the south side help cool your home in the summer and heat your home in the winter. Evergreens on northwest exposures protect your home from cold winter winds.

- **WATER PROPERLY** and at the right time. Place your landscape plants in groups based on watering requirements.

- **ADHERE TO THE LOW MAINTENANCE LANDSCAPE** practices outlined in this guide.

PHYSICAL CONTROLS

- **USE A HARD SPRAY OF WATER** with the garden hose to wash pests off infested plants. This will knock off and kill pests like spider mites and aphids.

- **BAND TREES WITH BURLAP TREE SKIRTS.** Gypsy moth and elm leaf beetles hide under the burlap during the day. You can see them and pick them off. Sticky bands that trap pests can be purchased at garden centers.

- **PRUNE DEAD BRANCHES** on trees and shrubs. Remove diseased cankers and sucker growth from branches.

- **REMOVE NESTS OF INSECTS** when they are small (e.g., tent caterpillars, fall webworm).

- **REMOVE LEAVES WITH DISEASE SPOTS.** This gets rid of the source of infection. Don't compost the infected leaves.

- **PLACE A DROP CLOTH UNDER INFESTED PLANTS** and shake the plants. This will catch black vine weevils and Japanese beetles if you do it at dawn or dusk.

- **PLACE FABRIC WEED BARRIERS** between plants or use these areas as walkways. Cover strips of fabric with inorganic mulch such as decorative stones or washed gravel.

- **USE INSECT TRAPS.** Yellow Sticky Traps capture adult leafminers and whiteflies. Place them six inches above foliage. Sticky traps are also used to determine

when scale insects are reproducing and thus controllable. Pheromone traps contain synthetic female sex scents that attract male insects, who then get caught in the sticky trap. This helps to establish the proper time to treat specific insect pests, such as borers (on dogwood and flowering cherry) and tip moth (on pine).

■ **HAND COLLECT AND DESTROY** caterpillars, bagworms, weevils, etc.

■ **USE FLOATING ROW COVERS**, a fabric placed over vegetables and fruits, which lets sunlight and water through, while keeping pests out. This can also help turfgrass germination.

■ **DO A GOOD CLEAN UP IN THE FALL.** Remove spotted and diseased leaves that have fallen to the ground. Remove nearby weeds or overgrown areas where pests may overwinter.

■ **REMOVE** the alternate plant host for the pest.



There are many other good ideas similar to these in other publications about landscaping. We recommend *The Chemical Free Lawn* by Warren Schultz, and *Common Sense Pest Control* by William Olkowski, et al.



BIOLOGICAL CONTROLS

BENEFICIAL INSECTS

Only a small percentage of the world's insects (5-10%) are pests. Natural enemies of pests have evolved (beneficial insects) to control these pests. Don't try to eliminate all the insects from your landscape. Learn to live with some of them. A non-damaging level of insect pests is a source of food for beneficial insects. The beneficial insects help control the numbers of insect pests and cut down on pesticide use.

Nature offsets every insect pest by providing some other

insect that destroys it. Some beneficials (predators) simply eat the pests. Others (parasitoids) actually lay their eggs in or on the pests. When the eggs hatch, the new beneficials feast on the pest hosts.

TO ATTRACT MORE BENEFICIAL INSECTS, such as green lacewings, spiders, lady beetles, parasitic wasps, big-eyed bugs, lightning bugs, soldier beetles, and dragonflies, grow flowers providing them a pollen/nectar food source.

■ Perennial flowers that attract beneficial insects include daisies, Queen Anne's lace, caraway, coriander, bishop's weed, blazing star, coreopsis, cosmos, fennel, golden marguerite, goldenrod, sunflowers, tansy, and yarrow.

■ Beneficials, such as ladybeetles and lacewings, can also be purchased from catalogs or garden centers. It is best to release immature beneficials. Adults may fly away once released. Make sure there is a pest present for them to eat before release, and spray the site down beforehand with water or diluted lemon-lime soda.



Contact Rutgers Cooperative Extension for a copy of the free brochure, "Natural Pest Control: Using Beneficial Insects to Control Landscape Pests."

Remember that conventional pesticide spraying kills beneficial insects as well as pests. Sometimes, pests become a problem because the site has been sprayed repeatedly, disturbing the natural balance. For example, research shows that euonymus scale populations explode following most pesticide sprays (except those in late June and late August, when it reproduces). Poorly timed sprays kill beneficials, so there is no competition to keep pests from proliferating.



AVOID USING "BUG ZAPPERS" OR BLACK LIGHT UNITS. These kill more beneficial insects than insect pests. Least toxic (biorational) pesticides, such as insecticidal soap, horticultural oil, or systemic products, have only a minimal impact on beneficials.



 *Invite
the birds*



BIOLOGICAL CONTROLS

BENEFICIAL ANIMALS

Birds, bats, frogs, toads, and even snakes feed on insects. Put out birdhouses for purple martins and bluebirds that eat all those nasty mosquitoes.

■ **Bt (*Bacillus thuringiensis*)** Scientists have produced biological controls for certain pests. A very useful product is *Bacillus thuringiensis* (Bt for short), an insect disease that kills small caterpillars such as tent caterpillars, gypsy moths, and bagworms. These toxic spores are eaten by the pests, which then develop paralysis, stop eating, and die. Bt doesn't last long in the environment, and it doesn't harm beneficial or non-caterpillar insects, people, or pets. For best results, use Bt when caterpillars are smaller than 1/2 inch. Bt is usually sold as a soluble powder that is mixed with water for sprays. The trade names for Bt are Dipel, Thuricide, and Caterpillar Attack.



■ (*Steinernema carpocapsae*) for surface-dwelling grubs. Either nematode can be used to control borers. IPM-trained professional landscapers have access to additional biological controls not available to the homeowner.

CHEMICAL CONTROLS

Pest populations vary in size from year to year, depending on the weather and the abundance of natural predators. An IPM strategy seeks to bolster natural controls and avoid unnecessary pesticide sprays.

A mix of two or more pest control methods will achieve more thorough and lasting results than any single method. Pesticides, therefore, should be used after, or in conjunction with, other control methods.

Pesticides should be used only after monitoring has pinpointed exactly where the problem is located and when the problem is serious enough to warrant spraying. Confining the spray to only infected plants or plant parts (spot treatment) can significantly reduce pesticide use and conserve beneficial insects.

ALTERNATIVE PESTICIDES

Some alternative pesticides are less toxic and considered “bio-rational.” These pesticides are safer for people and the environment. Common examples include horticultural oil and insecticidal soaps, as well as botanical products that are derived from plants, such as neem oil, corn gluten meal, and pyrethrum.

INSECT GROWTH REGULATORS (IGR) interfere with the insect’s life cycle by keeping it from reaching the adult stage. Currently available IGRs control fleas, caterpillars, and grubs. IGRs are usually applied by professional pesticide applicators.

- *Neem oil* is an IGR available for homeowner use. It comes from the seeds of the neem tree. This concentrated oil has been found to control over 100 different insect pests. Studies indicate that neem oil provides more than 80% control of aphids and leafminers and over 90% control of Japanese beetles. Neem oil also acts as a fungicide and insect repellent.

HORTICULTURAL OILS

New refining techniques have produced oils which are safe for insect and mite control during both the dormant and active plant growing seasons. These oils provide excellent control against many insect eggs and immature insects, especially scale crawlers, aphids, adelgids, mites, sawflies, non-hairy caterpillars, whiteflies, and beetle larvae. Oils are not effective against adult beetles. Oils work by coating and suffocating the insect. Once they dry, oils break down and become ineffective. Thus, there is little residue, which keeps beneficial insects safe.

- Horticultural oils are applied as either dormant or summer treatments. Read the labels carefully for the proper mixing rates. Dormant oils (3-4 % oil) are heavier, slower drying oils. These oils kill insects in their dormant stage. Apply these oils in early spring before new leaves emerge from the buds, usually in late March. Summer oils (1-2% oil) are more highly refined oils that kill by direct contact with the pest. Use these from June through September.

- Be careful when using horticultural oils. Read the label to find out which plants shouldn’t be sprayed, such as Colorado blue spruce. Don’t spray oil on drought-stressed plants, especially hemlock. Don’t spray on hot, humid days, on wet foliage, or if rain is expected. Don’t mix oils with a fungicide. Follow mixing directions carefully.



If you have any questions, contact Rutgers Cooperative Extension for a free fact sheet on horticultural oils.



INSECTICIDAL SOAPS

Potassium soaps kill the adult or immature stage of certain insect pests on contact. They provide good control of aphids, mites, immature scale insects, non-hairy caterpillars, adelgids, thrips, whiteflies, sawflies, spittlebugs, mealy bugs, and lacebugs. Repeat applications are necessary since there is no residual action.

Follow the directions on the package carefully. Be sure to cover vegetation completely with the spray. Two applications are often needed. Don’t spray insecticidal soap on hot, humid days or on drought-stressed plants. Don’t spray on cloudless, sunny days.

IPM VERSUS CONVENTIONAL SYNTHETIC PESTICIDES

Conventional synthetic pesticides (fungicides, insecticides, herbicides) can be used in an IPM program. However, they are usually applied only if the pest problem becomes serious, damage occurs, and alternative controls are not available or don’t work. In that case, a well-timed application of the recommended pesticide is appropriate.

- Remember, before using pesticides, properly identify the pest, and avoid spraying beneficial insects.
- Apply the recommended amount of pesticide to only the infested parts of the plant.



Contact Rutgers Cooperative Extension for pesticide control recommendations. These recommendations are updated to include the proper timing of the application and the selection of the most appropriate pesticide for the specific pest.

Follow these rules when using pesticides:

- 1. READ THE LABELS CAREFULLY.** Chemicals can be toxic to people and the environment. If pests are not present in sufficient numbers to cause damage, don’t spray.
- 2. SPOT TREAT** only the infested plants or plant parts. Don’t spread unneeded pesticides over every plant in the landscape. To protect beneficial insects, first spray every other infested plant. Then, a week later, spray the other half if the plants are still infested.
- 3. USE THE LEAST TOXIC PESTICIDE** that does the job.

4. TIMING IS THE KEY when spraying pesticides. Target the spray for the most vulnerable time in the life of the pest. Usually, this is the immature stage.

5. BE SAFE. Follow all the label safety directions. Don't spray on windy days. Dress appropriately, as recommended by the pesticide label.

6. MORE IS NOT BETTER. Use only the recommended amounts of the chemical. Mix only the amount you need.

7. CLEAN UP SPILLS to keep pesticides out of the water supply.

8. STORE PESTICIDES in a cool, dry place, safely away from children and pets.

IPM WEED CONTROL

Weeds are just plants growing where they are not wanted. They come in three types: annuals (e.g., sorrel, chickweed, crabgrass), biennials (e.g., Queen Anne's lace and dock weed), and perennials (e.g., dandelions, goldenrod, poke-weed).

WEEDS THRIVE in bare spots, acid soil, droughty sites, and other poor conditions. Once weeds gain a foothold, they eventually replace desired plants. Wind, water, birds, and animals all carry weed seeds.

THE TROUBLE WITH ANNUAL WEEDS is that each plant produces 25,000 to 250,000 seeds. A few annual weeds can cause big trouble the following year.

PERENNIAL WEEDS produce seeds as well as tough underground parts (tubers, rhizomes, bulbs, stems, etc.), which sprout new plants the following year.

BIENNIAL WEEDS produce seeds and then die in their second year.

TO PREVENT WEED GROWTH, USE MULCH. Mulch also helps to conserve soil moisture, buffer soil temperatures, and replenish nutrients to the soil. Organic mulches, such as shredded bark, are best. Maintain the mulch layer at two to four inches. Do not pile mulch around the base of trees or other plants. For newly planted trees, mulch an area three times the diameter of the root ball, expanding this area as the tree grows.

SHEETS OF POROUS FABRIC WEED BARRIERS (weed control mats) or newspaper can be used under mulch. These materials block light, discouraging weed germination, while allowing water and air to enter the soil. Do not use plastic, which causes roots to grow near the soil surface. Place no more than one inch of mulch on a fabric barrier.

BIORATIONAL WEED CONTROL

HERBICIDAL SOAPS are potassium-based soaps that dry up weeds. Unfortunately, they are non-selective, so they will kill turfgrasses as well as weeds. Use herbicidal soap as spot treatments, applying carefully with a spray bottle. You may need more than one application to do the job.

CORN GLUTEN MEAL can be used as a pre-emergent herbicide to control grassy and broad-leaf weeds in lawns. You will need several applications. Corn gluten meal also provides nitrogen, perhaps as much nitrogen as one application of lawn fertilizer.



Before using herbicides, identify the weed to determine the best time of year for control. Refer to Page 22 for general guidelines. Call Rutgers Cooperative Extension for specific herbicide recommendations.



PHOTO: C. MINERS



Chapter VI



A FINAL WORD: Eight Steps to a Better Landscape and Environment

This guidebook should give you a good idea of what is meant by low maintenance landscaping and how it helps the environment. We hope that you will put these low maintenance practices to work in your own landscape. Here is a review of the eight principles of low maintenance landscaping:

1. **PROPER SOIL PREPARATION**
This is the foundation of a successful low maintenance landscape.
2. **CAREFUL PLANT SELECTION**
Match the plant to the soil and sunlight conditions of your site.
3. **REDUCED LAWN SIZE**
The smaller the lawn, the easier and less expensive it will be to maintain.
4. **MINIMAL WATERING**
Water lawns and plants only when needed.
Plants need about an inch of water a week.
Don't waste water or irrigate unnecessarily.
5. **MULCHING**
Applying mulch annually around trees, shrubs, and flowerbeds will conserve water and reduce weeds.
6. **LIMITED FERTILIZATION**
Fertilize according to the requirements of your soil as indicated by a soil test.
Fertilize lawns in the fall for best results.
7. **PROPER PRUNING**
Pruning helps new plants maintain healthy growth by the removal of dead, diseased, damaged or insect-infested parts.
8. **"ENVIRONMENT FRIENDLY" PEST CONTROL**
Use Integrated Pest Management (IPM) methods to manage pests instead of relying solely upon conventional pesticides.





LOCAL AGENCIES TO ASSIST YOU

RUTGERS COOPERATIVE EXTENSION OF OCEAN COUNTY

1623 Whitesville Road
Tom's River, NJ 08755-1199

Office Hours: 9 a.m. to 4:30 p.m.

Master Gardener volunteer hotline, (732) 349-1245 (M, W, F; 9 a.m. to 12 noon)

For additional or commercial information, (732) 349-1246

Email: oceanag@rce.rutgers.edu

Web site: www.rce.rutgers.edu

SERVICES AVAILABLE:

General gardening information

Plant problem diagnosis

Tick identification

Soil pH testing

Plant recommendations for specific sites

Plant pest (insect and disease) identification and control advice

Speakers bureau

Horticultural therapy

Free gardening fact sheets

IPM information

OCEAN COUNTY SOIL CONSERVATION DISTRICT

714 Lacey Road
Forked River, NJ 08731

Office Hours: 7:30 a.m. to 4 p.m.

(609) 971-7002

Email: info@ocscd.org

Web site: www.ocscd.org

SERVICES AVAILABLE:

Information on soil types, growing conditions

Soil maps

Assistance with drainage problems

Assistance with ponds and waterways



PLANTS FOR THE LOW MAINTENANCE LANDSCAPE

(BARNEGAT BAY WATERSHED-OCEAN COUNTY AREA)

For proper spacing between plants, follow packaging or nursery instructions.

Choose plants with pH requirements that match the soil.

1. PEST-RESISTANT — DROUGHT-TOLERANT TREES - - adapted for sunny locations

	Height (feet)	Soil pH	Drainage	Salt-Tolerant	Light
Evergreen					
Japanese black pine	20-80	5.6	T	Y	SUN
white fir	30-50	5.6	WD		SUN
eastern red cedar*	40-60	6.8	P	Y	SUN
Deciduous					
kousa dogwood	20-30	4.6-6.5	WD		Light SUN
sourwood*	25-30	5.5-6.5	WD		
river birch*	45-65	5.0-6.0	P ('Heritage' birch = white bark variety)		SUN
European hornbeam	40-60	5.0-8.0	T		SUN
callery pear	30-40	6.0-7.0	T (not "Bradford" variety)		SUN
blackhaw viburnum*	12-15	6.0-7.0	T		SUN
pin oak *	60-100	6.0-8.0	WD	Y	SUN
redbud*	20-30	6.0-8.0	WD		SUN
sassafras*	30-60	6.0-7.0	WD	Y	SUN
seedless mulberry	40-50	6.0-7.0	T	Y	SUN
persimmon*	30-45	6.0-6.5	P		SUN
amur cork tree	30-45	T	WD		SUN
amur maple	15-18	T	WD		SUN
goldenrain tree	30-40	T	WD		SUN
Japanese zelkova	50-80	T	WD		SUN
nannyberry*	15	6.0-7.5	WD		SUN

2. PEST-RESISTANT — DROUGHT-TOLERANT SHRUBS

	Height (feet)	Soil pH	Drainage	Salt-Tolerant	Light
Evergreen					
sheep laurel*	1-2	5.6	P		FULL SUN
junipers	1-8	5.0-6.0	WD	Y	SUN/part shade
adams needle/yucca*	2-3	6.0-8.0	WD	Y	SUN
American cranberry bush*	2-6	6.0-8.0	P	Y	SUN/part shade
Chinese holly	1-8	T	T		FULL SUN

*native or naturalized plant

T = Tolerant (adapts to a wide range of soil pH and drainage conditions)

WD = well-drained soil

P = poorly-drained soil

Y = may grow near saltwater environments

<u>HEIGHT</u>	<u>SOIL pH</u>	<u>DRAINAGE</u>	<u>Salt-Tolerant</u>	<u>LIGHT</u>	
	(feet)				
Deciduous					
bayberry*	5-12	5.0-6.0	P	Y	SUN/part shade
black chokeberry*	3-5	5.0-6.0	P	Y	SUN/part shade
black huckleberry*	3	5.0-6.0	WD		SUN/part shade
lowbush blueberry*	1-2	5.0-6.0	WD	Y	SUN/part shade
fothergilla *	2-6	5.0-6.0	WD		SUN/part shade
New Jersey tea *	3	5.0-6.0	WD	Y	SUN/part shade
red chokeberry*	6-10	5.0-6.0	T	Y	SUN/part shade
Scotch broome	4-8	5.0-6.0	WD	Y	SUN (prefers poor, sandy soil)
star magnolia	6-15	5.0-6.0	P		SUN/part shade
Virginia sweetspire	3-5	5.0-7.0	P	Y	SUN to SHADE
butterfly bush	5-10	6.0-7.0	WD		SUN
chaste tree(vitex)	6-8	6.0-8.0	WD		SUN
potentilla	1-4	6.0-7.0	WD	Y	SUN
flameleaf sumac	20-30	6.0-7.0	WD		SUN
beach plum*	2-10	6.0-8.0	WD	Y	SUN
California privet	10-15	6.0-8.0	T		SUN/part shade
groundsel bush *	8-10	6.0-8.0	T	Y	SUN
glossy abelia	3-6	6.0-8.0	T		SUN/part shade
gray dogwood*	8-15	6.0-8.0	T		PART SHADE
rugosa rose	3-5	6.0-8.0	WD	Y	SUN/part shade
Korean barberry	4-6	6.0-8.0	WD		SUN/part shade
fragrant sumac	3	4-6	WD	Y	SUN/part shade

3. DROUGHT AND PEST-RESISTANT GROUNDCOVERS

	<u>HEIGHT</u>	<u>SOIL pH</u>	<u>DRAINAGE</u>	<u>Salt-Tolerant</u>	<u>LIGHT</u>
	(inches)				
Evergreen					
bearberry*	6-12	4.0-6.0	WD	Y	SUN/part shade
beach heather*	3-8	5.0-6.0	WD	Y	SUN
heath*	12-24	5.0-6.0	WD	Y	Sun
heather*	12-24	5.0-6.0	WD	Y	SUN (don't overfertilize)
creeping juniper	3-12	5.0-6.0	WD		SUN
vinca*	6	6.0-7.0	P		Part shade
lavender cotton	18	6.0-7.0	WD		SUN
candytuft	12	6.0-7.0	WD	Y	SUN
Non-evergreen					
bracken fern*	18	5.0-6.0	WD		SUN
prickly pear cactus	6	5.0-6.0	WD	Y	SUN
St. John's wort (also shrub forms)	12-18	6.0-7.0	WD		SUN/part shade
artemesia	12	6.0-7.0	WD	Y	SUN
daylily	12-18	6.0-8.0	WD	Y	SUN
sedums	6-12	6.0-8.0	WD	Y	SUN/part shade
wineleaf cinquefoil	2-6	6.0-8.0	WD	Y	SUN
creeping thyme	2-6	7.0-8.0	WD	Y	SUN/part shade
lamb's ear	6-12	T	WD	Y	SUN/part shade
creeping lilyturf (Liriope)	8-10	T	P	Y	Part shade
bishop's weed (Ajuga)	8-10	T	T		SUN to SHADE

* = native or naturalized plant

T = Tolerant (adapts to a wide range of soil pH and drainage conditions)

WD = well-drained soil

P = poorly drained soil

Y = may grow near saltwater environments

4. LOW MAINTENANCE — DROUGHT-TOLERANT PERENNIALS

(All perennials in this list thrive in sunny locations with well-drained soils.)

	<u>HEIGHT</u> (feet)	<u>pH</u>	<u>SALT-TOLERANT</u>	<u>LIGHT</u>
tickseed(Coreopsis)	1-2	5.0-6.0		SUN
liatris (gay feather)	2-5	5.0-6.0		SUN
sundrop*	1	5.0-6.0		SUN
asters	1-3	5.0-7.0		SUN
coneflower*	2-4	6.0-7.0	Y	SUN/part shade
globe thistle	1-2	6.0-7.0		SUN/part shade
golden marguarite	2-3	6.0-7.0	Y	SUN
lavender cotton	.5-2	6.0-7.0	Y	SUN
bachelor button	1-2	6.0-7.0	Y	SUN/part shade
Russian sage	3-4	6.0-7.0	Y	SUN
statice	1-2	6.0-7.0	Y	SUN
veronica	3-6	6.0-7.0	Y	SUN
St. John's wort*	1-2.5	6.0-7.0		
(has shrub & groundcover forms)				
yarrow	3	6.0-7.0		SUN
black-eyed susan*	1-3	6.0-8.0	Y	SUN
gaillardia*	1-2	6.0-8.0		SUN
butterfly weed*	2-3	6.0-8.0		
artemesia	1-3	6.0-8.0	Y	SUN/part shade
sedum	1.5-2	6.0-8.0	Y	SUN
goldenrod*	2-3		T	SUN

* = native or naturalized plant

Y = may grow near saltwater environments

NOTES

5. LOW MAINTENANCE — DROUGHT-TOLERANT ANNUALS

(Unless otherwise indicated, the annuals included in this list require a sunny location, well-drained soil, and soil pH between 6.5 to 7.5. Height is indicated in inches.)

	<u>HEIGHT</u> (inches)	<u>pH</u>	<u>SALT-TOLERANT</u>	<u>LIGHT</u>
African daisy	(15-18)			SUN
California poppy	(6-15)	T	T	SUN
cape marigold	(12)			SUN
cornflower	(12-36)		T	SUN
marigold	(6-36)			SUN
phlox	(6-12)		T	SUN
sunflower	(variable)			SUN
portulaca	(6)		T	SUN
cleome	(48)		T	SUN
gaillardia	(14-24)		T	SUN
evening primrose	(12)			SHADE
periwinkle	(12)		T	SUN
globe amaranth	(12-24)			SUN
coreopsis	(variable)	T		SHADE
dusty miller	(8)			SUN
gazania	(8)			SUN
sweet alyssum	(3-12)		T	SHADE
four-o-clocks	(24)			SUN

6. LOW MAINTENANCE — DROUGHT-TOLERANT ORNAMENTAL GRASSES

All of these grasses have the following characteristics:

- a. drought-tolerant
- b. pest and disease free
- c. clump forming
- d. require well-drained soil
- e. require full sun

	<u>FOLIAGE HEIGHT</u> (inches)	<u>FLOWER HEIGHT</u> (inches)
elloott's broom-sedge *	10	36
split-beard bluestem *	10	36
broom-sedge*	10	44
side-oats grama*	12	40
feather-reed grass ("stricta")*	30	70
wildoats (river oats)*	35	45
blue fescue	12	24
switch grass*	38	54
little bluestar*	10	40
indian grass*	32	74
porcupine grass (strictus)	80	105
bent-awn plume grass	24	95
moor grass	16	24

* indicates native or naturalized plant

T = Tolerant (adapts to a wide range of soil pH and drainage conditions)

7. SEEDING MIXTURES FOR LOW MAINTENANCE HOME LAWNS

Avoid planting only one variety of seed. Using a mixture will protect against insect and disease problems. New varieties are being developed all the time. Contact Rutgers Cooperative Extension if you have any questions.



CONDITIONS AND SEED TYPE	SEEDING RATE (LBS. PER 1000 SQ. FT.)	
1. Open, sunny sites, some shade, well-drained soils		
A) tall fescue (turf types)	100%	6-8 lbs. per 1000 square feet
<hr/>		
B) Kentucky bluegrass (low maintenance)*	50-60%	
fine fescue	40-50%	
perennial ryegrass	0-10%	
	TOTAL	3-4 lbs. per 1000 square feet
<hr/>		
2. Moderate to partial shade, well-drained soils		
A) fine fescue		
hard fescue	10-30%	
creeping red fescue	20-50%	
chewings fescue	10-30%	
	TOTAL	4-5 lbs. per 1000 square feet
<hr/>		
B) fine fescue	50-75%	
Kentucky bluegrass (low maintenance)*	25-50%	
perennial ryegrass	0-10%	
	TOTAL	3-4 lbs. per 1000 square feet
<hr/>		
C) tall fescue (turf types)	100%	6-8 lbs. per 1000 square feet
<hr/>		
3. Heavily used (high traffic) areas		
A) tall fescue (turf types)	85-95 %	
Kentucky bluegrass (low maintenance)*	5-15 %	
	TOTAL	6-8 lbs. per 1000 square feet

*** NOTE:** Seed mixtures comprised predominantly of Kentucky bluegrass are *not* recommended for low maintenance lawns. If you cannot obtain the specific low maintenance bluegrass varieties listed in Section 8, select another turf-grass type for your low maintenance lawn.

NOTES

8. VARIETIES OF GRASSES RECOMMENDED FOR LOW MAINTENANCE HOME LAWNS

GRASSES

VARIETIES

tall fescue

Amigo, Apache II, Austin, Avanti, Bonanza, Chieftain, Cimarron, Cochise, Coronado, Crewcut, Crossfire, Duke, Eldorado, Era, Guardian, Houndog V, Hubbard 87, Jaguar II, Jaguar 3, Lancer, Maverick II, Mesa, Mini Mustang, Monarch, Montauk, Olympic II, Rebell II, Rebel Jr., Rebel 3D, Safari, Shenandoah, Shortstop, Silverado, SR 8200, SR 8300, Titan, Thoroughbred, Tomahawk, Trailblaze II, Tribute, Virtue, Vegas, Winchester, Wrangler

Kentucky bluegrass**

Aspen, Banff, Cheri, Classic, Columbia, Dawn, Eagleton, Freedom, Georgetown, Haga, Livingston, Monopoly, NuStar, Parade, Plush, Preakness, Ram I, Rugby, SR2000, Suffolk, Trenton, Vantage, Voyager, Wabash.

perennial ryegrass

Advent*, Affinity*, APM*, Assure*, Birdie II, Brightstar*, Charger, Dandy*, Delaware Dwarf*, Dimension, Elf*, Envy, Gettysburg*, Legacy*, Manhattan II*, Manhattan III*, Navaho*, Palmer II*, Pinnacle*, Prelude II*, Prism*, Quickstart*, Repell II*, Saturn*, Seville*, Sherwood*, SR4000*, SR4100*, SR4200*, Yorktown III*.

creeping red fescue

Cindy, Flyer, Jasper, Salem, Shademaster II, Vista.

hard fescue

Attila, Aurora*, Biljart, Discovery* , Ecostar, Nordic, Reliant*, Scaldis , Spartan, SR3000, SR3100, Valda, Waldina, Warwick

chewings fescue

Banner, Bridgeport, Jamestown II, Longfellow, Proformer, Shadow II, Southport, SR-5000, Victory

* endophyte-enhanced

Endophytes are fungi or bacteria living within plants and are transferred through seed. They help produce high quality lawns by controlling webworms and chinch bugs. Endophytes also make lawns more drought-resistant.

**** NOTE:** Seed mixtures comprised predominantly of Kentucky bluegrass are *not* recommended for low maintenance lawns. If you cannot obtain the specific low maintenance bluegrass varieties listed above, select another turfgrass type for your low maintenance lawn.

NOTES

 **SOIL AND PLANT TEST SERVICES:****1. SOIL pH TEST**

This test determines the soil pH. Recommendations are given for liming or acidification of soil, if necessary. The soil pH test is provided by Rutgers Cooperative Extension of Ocean County, in either the Toms River or Manahawkin office.

2. COMPLETE SOIL TEST

This test, performed by Rutgers Soils Laboratory in New Brunswick, determines soil texture, pH, phosphorus, potassium, and levels of other essential elements. Recommendations are given for appropriate liming, acidification, and fertilizer application. Soil test kits are available at Rutgers Cooperative Extension in either the Toms River or Manahawkin office.

3. PLANT DIAGNOSTIC SERVICES

Rutgers Cooperative Extension Plant Diagnostic Laboratory diagnoses horticultural problems relating to plants, turf-grass, insects, and plant diseases. Submission forms are available from any Rutgers Cooperative Extension office and are available online at www.rce.rutgers.edu.

Toms River office:

1623 Whitesville Road
Toms River, NJ 08755
(732) 349-1246
Hours: 9 a.m. to 4:30 p.m.

Manahawkin office:

325 Recovery Road
Manahawkin, NJ 08050
(609) 597-1500
Hours: Call for current office hours.

NOTES



LAWN FERTILIZATION GUIDELINES

Low maintenance lawns — nitrogen fertilizer application rates

(recommended for Ocean County, NJ)

REQUIRED NITROGEN AMOUNT

APPLICATION - MONTH AND AMOUNT

	May	September	October	November (optional)
A. If you irrigate and remove the grass clippings, apply 2 1/2+ lbs. of N per 1000 sq. ft. each year	0.5 lb.	1.0 lb.	1.0 lb.	(0.5 lb.)
B. If you irrigate, but don't remove the grass clippings, apply 2+ lbs. of N per 1000 sq. ft. each year	0.5 lb.	1.0 lb.	0.5 lb.	(0.5 lb.)
C. If you don't irrigate and don't remove the clippings, apply 1 1/2+ lbs. of N per 1000 sq. ft. each year	0.5 lb.	1.0 lb.	(0.5 lb.)	—

Note: Apply no more than 1lb.N per 1000 sq. ft. at each feeding, unless using a slow release fertilizer (>50% water insoluble nitrogen). At least 30-60 % of the nitrogen fertilizer should be of the WIN type. See the conversion table for rates.

CONVERSION TABLE FOR NITROGEN FERTILIZER

The following chart will help you to determine how much fertilizer is needed to supply the required nitrogen for your lawn. Keep in mind that the first number on the fertilizer bag (e.g., 8-4-24) represents the percentage of N.

% of N on fertilizer bag

Pounds of that bag's fertilizer needed for:

	<u>0.5 lb. of N/1000 sq. ft.</u>	<u>1 lb. of N/1000 sq. ft.</u>
5%	10 lb.	20 lb.
10	5 lb.	10 lb.
12	4.15 lb.	8.3 lb.
16	3.15 lb.	6.3 lb.
20	2.5 lb.	5 lb.
25	2 lb.	4 lb.
30	1.65 lb.	3.3 lb.
33	1.5 lb.	3 lb.
40	1.25 lb.	2.5 lb.
45	1.1 lb.	2.2 lb.

For other ratios of N, use this chart to approximate the amount needed.

NATURAL ORGANIC FERTILIZERS: Organic Nitrogen Sources

	<u>AMOUNT OF N</u>	<u>AMOUNT NEEDED FOR 1 LB. N</u>	<u>RATE OF N RELEASE</u>
cow manure (composted)	1.0 %	100 lbs.	slow
cow manure (dehydrated)	2.0%	50 lbs.	slow
compost	2.5%	40 lbs.	slow
cottonseed meal	7.0%	14.3 lbs.	slow-medium
dried blood	12.0%	8.3 lbs.	medium-rapid
fish meal (dry)	10.0%	10 lbs.	slow

How much fertilizer should I use?

If you bought a 50 lb. bag of 10-4-8 quick release fertilizer for a 4000 square foot lawn, and wanted to apply one lb. of N per 1000 square feet, how much fertilizer should you apply? The first number on the fertilizer bag (10) indicates the percentage of nitrogen. Since the bag is 10% N, a 50 lb. bag contains five lbs. of nitrogen. This five lbs. of N is distributed evenly throughout the bag, so you will have to use 1/5 of the bag (10 lbs.) to put one lb. of nitrogen on each 1000 square feet of lawn.

NOTES



KEY INSECT PESTS FOR KEY PLANTS

These “key” (pest-prone) plants are common to Ocean County. When weakened by environmental stress, or if several of the plants are in the same area (monoculture), they become susceptible to attacks by insects and disease. The pests in this list attack during dry and rainy seasons.

If you have any of these plants in your yard, check them on a regular basis.

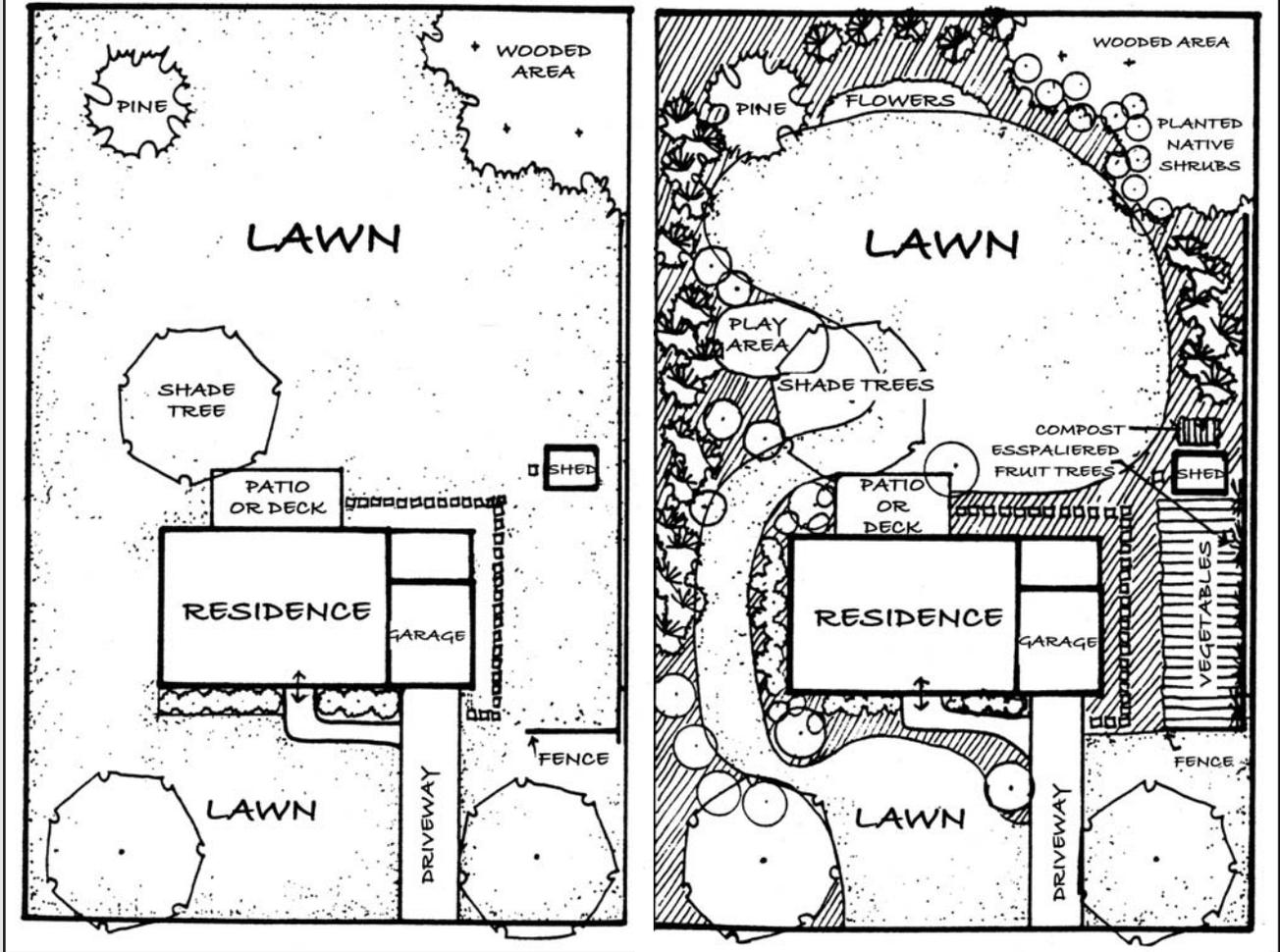
KEY PLANT	KEY PEST	SYMPTOMS	CONTROL
azalea	lacebug	~yellow speckled leaves ~tar spots on leaf undersides ~three outbreaks per year	~orthene ~apply insecticidal soap or oil to leaf undersides in late May or early June when pest active ~mulch and water plants
crabapple	eastern tent caterpillar	~webs in branch crotches ~black styrofoam egg masses in dormant season	~remove egg masses in winter ~prune and destroy small tents when nests first noticed (early May)
arborvitae	bagworm	~cone-like two inch bags ~defoliation by mid-July	~hand pick bags in winter ~apply Bt by mid-June ~apply pesticides by July
rose, linden	Japanese beetle	~skeletonized leaves ~foliage eaten between veins	~from mid-July to mid-September, hand pick and destroy adults ~treat soil with insecticide, IGR, or nematodes for grubs on turf-grass
mugho pine	pine sawfly	~in mid-to late May, small caterpillars feeding and defoliating ~feeding as a group for two generations (June)	~prune out affected branches ~when pests are seen, use horticultural oil or soap
Japanese euonymus	euonymus scale	~loss of leaves, scale on bark or leaves ~look for yellow crawlers from early June to mid-August	~prune out ~apply horticultural soap or oil to crawlers
dogwood	dogwood borer	~holes in bark, sawdust near holes ~small cocoons near holes ~trees in decline	~apply Permethrin to bark around Memorial Day ~mulch and water

<u>KEY PLANT</u>	<u>KEY PEST</u>	<u>SYMPTOMS</u>	<u>CONTROL</u>
rhododendron	black vine weevil	~ "c" notching on new leaves	~at night, knock off adults in pitfall traps and destroy-drench soil with nematodes
hemlock	woolly adelgid	~yellow needles, entire branches die back ~cottony substance at base of needles	~treat terminals thoroughly with 2% horticultural oil or soap in Sept.-Oct. or March-April. ~Consult a professional
white birch	birch leafminer	~in May and June, wiggly lines (mines) appear in leaves ~in late June, leaves turn brown and scorched	~in early to mid-May, apply orthene or neem oil
juniper (as groundcover)	tip blight	~branch tips turn brown ~entire branches die	~prune out infected branches ~identify cause and treat with fungicide

NOTES



SAMPLE LANDSCAPING PLAN



The BEFORE Plan

Remember to include all existing natural and man-made (cultural/physical) features in your sketch. Note the amount of sunlight each area of your yard receives.

The AFTER Plan

Remember to select plants that are adapted to the soil and sunlight conditions in your yard. Group plants together according to their watering requirements.

