

Lawn Fertilizers

(Enemy of the Estuary ?????)

Prepared by:

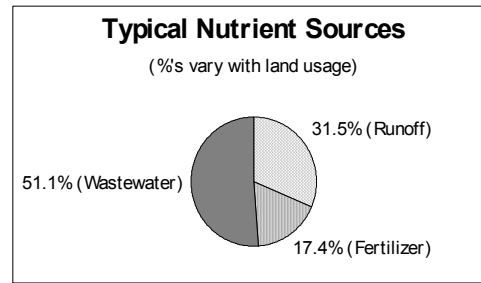


www.mashpeemec.us
P.O. Box 274, Mashpee, MA 02649

The damaging impacts

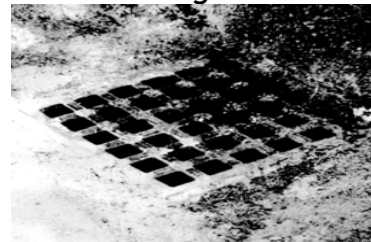
from excess nutrient enrichment of our coastal waters are increasing at an alarming rate. Muck buildups, foul odors, turgidity, loss of shell/finfish habitat and fish kills from low oxygen conditions due to increased algae respiration and decomposition are directly traceable to nutrient enrichment problems.

Although fertilizer leaching is estimated to be about one-fifth of the total nutrient problem, the solution is **reductions in all** of the nutrient sources. No individual source reduction will correct the problem. Fertilizers are a significant estuarine nutrient source as shown in (Cape Cod typical) Figure 1.



(Figure 1)

Nutrients from home fertilizers enter our surface waters via leaching and/or runoff. A portion of the water soluble nutrients in fertilizers is transported to groundwater by rain or irrigation. The nutrient containing groundwater feeds our streams. Runoff can be direct flow from the fertilized site to the water body or storm water flowing to a storm drain.



estuarine delivery device

Nitrogen is the Estuarine Villain

Nitrogen, phosphorus and potassium, with added trace elements, are required for plant and algae growth. Our coastal systems normally contain an excess of phosphorus & potassium. This excess supply makes plant available nitrogen the key to limiting the damaging impacts of nutrient oversupply.

Atmospheric nitrogen approaches 80% of the air we breathe and with minor exceptions is not usable as a nutrient. It becomes usable if it is chemically attached to other elements such as hydrogen (to form ammonium) or oxygen (to form nitrate). Some bacteria associated with legumes and rice can convert atmospheric nitrogen to plant usable types while some other bacteria can convert plant available nitrogen to the harmless atmospheric gas. The nitrogen in common fertilizers is typically water soluble & plant usable.

Organic VS Inorganic Nitrogen

The nitrogen in fertilizers can be mined, manufactured (inorganic) or derived from plant and animal byproducts (organic).

Inorganic fertilizers are typically highly water soluble and immediately plant available. Organic fertilizers usually have low solubility and become plant available via conversion to inorganic forms by soil bacteria. They therefore are slower acting and longer lasting.

Membership in the Mashpee Environmental Coalition is open to all. Write to P. O. Box 274, Mashpee, MA 02649.

Release Rates?

Lawn fertilizers are classified by terms indicating how quickly the nitrogen they contain becomes available to plants. Fast, slow, and controlled are the common terms utilized to describe this feature.

Many less expensive manufactured fertilizers (ureas, ammoniums and nitrates) are fast release and high in leaching potential. Examples of slow release, organic types which are less prone contaminating groundwater are plant or animal based products such as treated sludge, manures and cottonseed or soybean meals. Controlled release fertilizers include some types of ureaform, isobutylidene diurea (IBDU), and coated nutrients.

Application Rates

(industry recommended)

Recommendations for nitrate applications vary from about 5 lbs./1,000 sq. ft. total in 6 annual applications to 1.5 lb. total in 2 applications (3/4 lb. Ea.) depending on the soils holding ability and quality desired (estate/standard/minimum).

Normal manufacturer's suggestions listed on containers are usually about 1 lb./1,000 sq. ft. each, for multiple applications.

The information in this pamphlet is a summary of public information available from fertilizer manufacturers and turf research institutes.

Potential Improvements

Size Reduction

Green carpet landscaping with its attendant fertilizer needs is gaining notoriety for its damaging environmental impacts.

Landscape practices that reduce fertilized grass and utilize turf as a frame or counterpoint for areas planted with native or other non-invasive zero fertilizer need species should be considered.

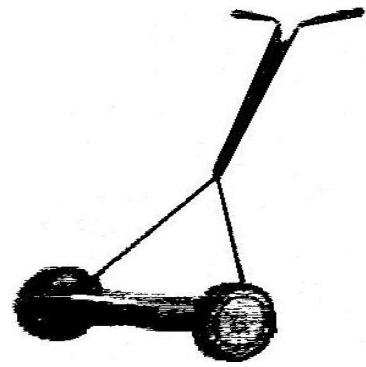
Planted areas of this type can't leach what isn't added and also provide a buffer for nutrient problems associated with atmospheric deposition.

Soil Upgrading

The sandy soils of Cape Cod are extremely low in nutrient holding capability. This condition favors nutrient leaching to groundwater.

Soil amendments that tend to keep moisture and fertilizers in root zones help significantly.

Existing planted areas can be improved by periodic top dressing with items such as peat moss or compost.



Mowing Practices

Lawn height and mowing frequency should be targeted to encourage deep rooting and soil enhancement via mulched grass clippings.

Mowed lawn height suggestions vary between agencies. The lowest height listed was about 1 ½ inches for spring and early fall only. Maximum height, which encourages maximum root depth, for a well maintained lawn peaked at about 3 inches. Close cutting is considered damaging and should be avoided.

Lawns should generally be mowed at a frequency that removes 1/3 or less height with clippings short enough to leave in place where soil microorganisms will decompose them. The decomposed clippings can provide 25% or more of the lawn's nutrient requirements while the soil structure is improved.

Remember, grass clippings by themselves do not cause thatch. Thatch comes from letting the grass get too high before cutting, incorrect watering or excess fertilization. You can adjust for missed mowing with mower height adjustments, letting clumped clippings dry for a day and re-mowing, or both.

Nutrient Selection

Try to avoid the common highly "fast release" fertilizers that give rapid but short term results which induce repeated applications. Opt for the "slow and steady" organic, coated or manufactured types that are identified as water insoluble (WIN).

If you want rapid results look for products that are a combination of types with a high quantity of WIN or controlled release components.

Limit Amounts

Many research institutes suggest rates of 25% less than the typical bag rates of 1 lb. / 1,000 sq. ft. as the optimum amount.

Bear in mind that atmospheric deposition and in-place clippings are providing some nutrients and can exceed ¼ of the lawn's need.

Exercise patience, go with less! You can always add

more but you can't remove excess!

Want to convert some Lawn to a no fertilizer native shrub area??

Outline a plot.

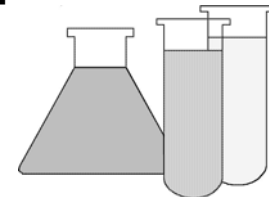
Cover 5 pages thick with wet uncolored newsprint. (WELL OVERLAPPED!!)

Apply 4 to 6 in. landfill mulch.

Rest for a few weeks.

Plant beach plum, beach rose, shad bush or other choice.

Soil pH



New England soils, including Cape Cod are typically acidic, i.e. below 7.0 on the pH scale. Lawns generally can withstand levels between 6.0 to 8.0. If the pH falls below 6.0 the application of agricultural limestone to raise the pH is advisable.

Soil pH levels can be tested by the home owner using an inexpensive test kit or by publicly available services from master gardeners or your County Extension service.