

Coral Reefs Are Valuable

MANY PEOPLE MARVEL AT THE BEAUTY OF CORAL REEFS.

They provide critical habitat for a diverse assortment of marine life, and they are a resource for the recreation, commercial fisheries, scientific research, education and inspiration that support our way of life. Millions of tourists and local residents enjoy scuba diving, snorkeling and fishing on Florida's coral reefs. These activities are an important source of income for Florida and its coastal communities, generating \$6.3 billion in sales and income and supporting 71,000 jobs each year³.

Coral reefs are also beneficial in other ways. They protect our shorelines from beach erosion caused by storms and hurricanes⁴, and they remove and recycle atmospheric carbon dioxide. Scientists are also studying ways coral extracts may be used to help fight diseases like HIV and cancer⁵; while other coral compounds are already being used for bone grafting⁶.



PHOTO BY JENNIFER PODIJS



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Learn more by visiting these websites:

Florida Friendly Landscaping Program, University of Florida
<http://fyn.ifas.ufl.edu>

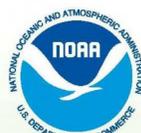
For your local UF/IFAS Extension office:
<http://fyn.ifas.ufl.edu/map/index.html>

For UF/IFAS recommendations:
http://fyn.ifas.ufl.edu/handbook/Fertilize_Appropriately_vSep09.pdf

U.S. Environmental Protection Agency
<http://www.epa.gov/pesticides/>

Beyond pesticides (pesticide alternatives)
<http://www.beyondpesticides.org/alternatives/factsheets/index.htm>

NatureScape, Broward
<http://www.broward.org/naturescape>



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4. Chong, J. (2005). *Protective values of mangrove and coral ecosystems: A review of methods and evidence*. The World Conservation Union. Retrieved from: <http://data.iucn.org/tsunami/docs/pr-values-mangrove-coral-ecosystems-methods-evidence.pdf>
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6. Demers, C., Hamdy, C.R., Corsi, K., Chellat, F., Tabrizian, M., & Yahia, L. (2002). Natural coral exoskeleton as a bone graft substitute: a review. *Bio-medical Materials & Engineering*. 12, 15-35.
7. For your local UF/IFAS Extension office: <http://fyn.ifas.ufl.edu/map/index.html>
8. For UF/IFAS recommendations: http://fyn.ifas.ufl.edu/handbook/Fertilize_Appropriately_vSep09.pdf

Protect Florida's Coral Reefs

Use Fertilizers and Pesticides Wisely to Protect Coastal Waters and Habitats

Many people think of corals as plants or even rocks. A coral is, in fact, a very delicate living creature. Florida is the only state in the continental United States that has extensive coral reefs, often referred to as "rainforests of the ocean" because of the diverse ecosystems they support. These unique coral reefs may be damaged by pollution resulting from urban landscape practices. To protect coral reefs, it is very important that everyone follow recommendations for reducing pollution when working on lawns and landscapes.

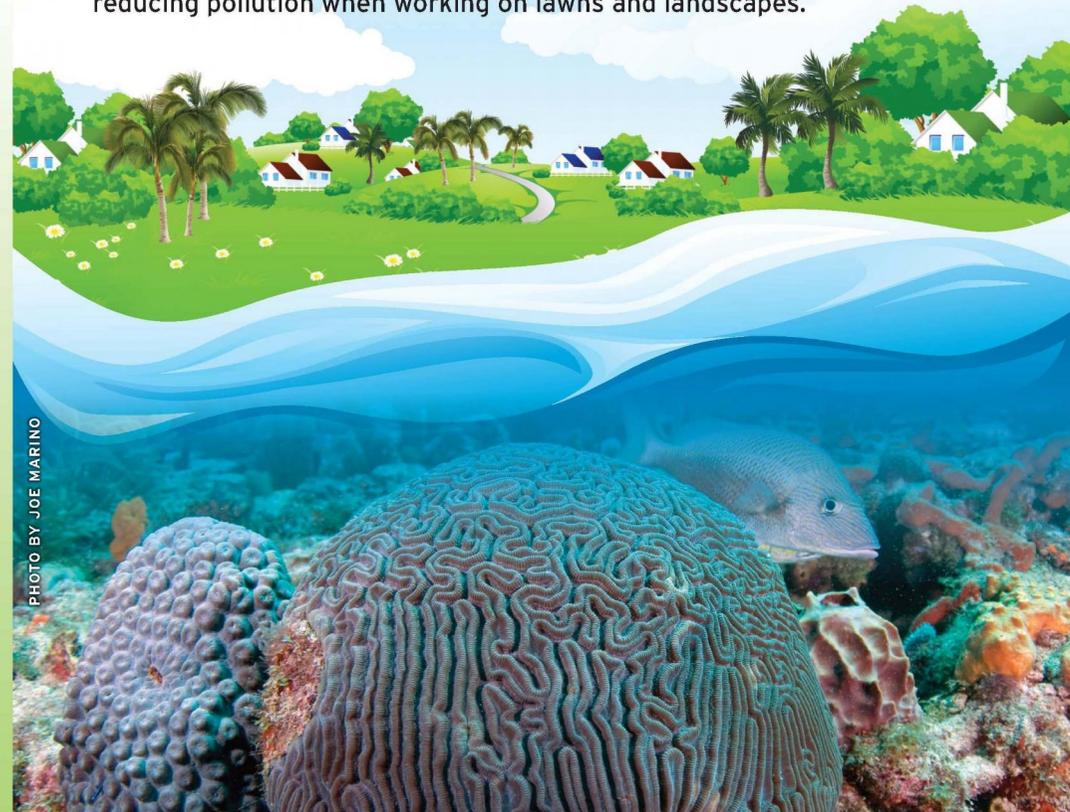


PHOTO BY JOE MARINO

THE CONCERN

In Florida, everything that goes onto or into the ground has the potential of finding its way into our waterways and aquifers as pollution.

Non-point source pollution (NPSP), unlike pollution from readily identifiable point sources, such as industrial and sewage treatment plants, comes from many diverse sources. Rainfall and excess irrigation can carry potential pollutants from many sources into our water. Nutrients and pesticides in lawn and landscape products can cause NPSP if they are not used and applied properly. Some of these pollutants flow into our lakes, rivers, canals and lagoons; and eventually, many of them enter the ocean, where they harm the marine environment, and our coral reef ecosystem in particular.



Top: A southeast Florida coral reef
Above: Macroalgae overgrowing a coral reef

PHOTO BY JOE MARINO

PHOTO BY STEVE SPRING

FERTILIZER IMPACTS

Lawn and garden fertilizers are typically manufactured with three primary nutrients: nitrogen (N), phosphorus (P), and potassium (K), all of which are required for plant growth. However, if applied in excess or at the wrong time, such as before a rainstorm, they may be transported to ground or surface waters. **These nutrients can cause problems when they reach waterways by causing increased growth of harmful algae which can smother corals or block sunlight needed for coral growth¹.**

PESTICIDE IMPACTS

Pesticides are used to control unwanted destructive organisms. Here, the term pesticide includes herbicides, fungicides and insecticides. Like fertilizers, improperly applied pesticides can be washed into nearby waterways that drain into the ocean. **Chemicals in pesticides can harm delicate coral reef communities by disrupting coral reproductive cycles and settlement of coral larvae¹, eventually resulting in a degraded or dead reef.** Some pesticides have been found to cause coral bleaching, even at very low levels².

What You Can Do

USE FERTILIZERS APPROPRIATELY

YOU CAN AVOID AND MINIMIZE ENVIRONMENTAL IMPACTS FROM FERTILIZER MISUSE AND OVERUSE BY FOLLOWING THESE GUIDELINES:



- Fertilize only as needed to maintain the health of your landscape. Follow UF/IFAS recommendations⁸ for maintaining a healthy Florida-Friendly™ landscape.



- Identify the problem before you fertilize or use a pesticide. Don't assume that fertilizer will improve an "ailing" plant or landscape. Contact your local UF/IFAS Extension office⁷ to assist in diagnosing problems with stressed plants and recommendations for fertilizer use.

- Leave grass clippings on your lawn after mowing. The clippings act as a natural fertilizer, replacing nutrients; and, they help retain moisture, lessening the need to irrigate.

- Choose a fertilizer where some of the nitrogen is in a slow-release form.

- Avoid "weed and feed" products. They contain both fertilizers and herbicides and can injure trees and shrubs.

- Read and follow product instructions every time you use the product; and, apply fertilizer amount as per UF/IFAS recommendations⁸.

- Avoid fertilizing when heavy rain is predicted to prevent runoff.

- Keep fertilizers and pesticides away from direct contact with water. Apply fertilizer at least 10 feet away from any body of water, or 3 feet if using a deflector shield or drop spreader.

- Conserve water and irrigate efficiently. When fertilizing, irrigate with 1/4 inch of water to move fertilizer just below the soil surface to the roots. Don't overwater or fertilizer will move past the root zone and into groundwater.

- Keep fertilizers off hard surfaces, such as driveways. Sweep up fertilizer spills instead of hosing down the spill area to prevent fertilizers from reaching storm drains or nearby water bodies. Return excess to the original, or another suitable, container.



- Remember, "Right Plant, Right Place" - select low maintenance and native plants to help reduce the need for fertilizer use.

- Add homemade compost as "mulch" dressing to provide nutrients and prevent excessive weed growth.

MANAGE YARD PESTS RESPONSIBLY

- 99% of all insects are either beneficial, harmless or do not cause significant damage to plants. Identify insects before eliminating them (contact your local UF/IFAS Extension office⁷).



- Start with the safest alternatives first, such as hand-picking the insects or pruning the affected part of the plant.

- Spot treat problem areas rather than spraying your whole yard; and, always read and follow label instructions.



- If pesticide use does become necessary, use products such as insecticidal soap and horticultural oil that are the least harmful to people, pets and wildlife.

- Eliminate areas of standing water which can become breeding grounds for mosquitoes.

- Remove debris and dead organic material around your home. Pests thrive in decaying matter.

- Landscape with native plants and other plant species which have natural pest defenses - remember "Right Plant, Right Place."

USE HERBICIDES SPARINGLY

AVOID AND MINIMIZE ENVIRONMENTAL IMPACTS FROM HERBICIDE MISUSE AND OVERUSE BY FOLLOWING THESE GUIDELINES:

- Use a 2-3" layer of mulch, such as Malaleuca or pine bark, to minimize weed growth.



- Spread a layer of newspaper or landscape fabric under the mulch to smother unwanted vegetation and stop weeds from emerging.

- Physically hand-pull weeds and other unwanted nuisance plants, or use a hoe, trowel, or shovel.

- Try alternatives, such as horticulture vinegar or acetic acid, which can help eliminate unwanted plants in some situations. When sprayed on leaves, vinegar and acid act as dehydrators, stripping the natural waxy coating from plants and causing them to dry out.

