Nonpoint Source Management Section

Presents:

Florida's Urban BMPs,

Homeowners, Landscaping, Golf,

and the

Future of Stormwater

BMPs address Nonpoint Sources

We are *all* part of the problem, we must *all* be part of the solution.

Laws Passed

- 1972 Clean Water Act – Created TMDLs
- State laws
  - 1991 Xeriscape Law
  - 1994 Nitrate Bill
  - 1999 TMDL Bill
  - 2004 373.228 req'd. irr. & landscape stds.
    - issued Oct.2006

BMPs - defined

- 373.4595 Florida Statutes
  - "Best management practice" means a practice or combination of practices determined by the coordinating agencies, based on research, field-testing, and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural and urban discharges.

2 Types of BMPs

- Non-Structural / onsite
  - Prevent generation or pollution of stormwater
  - FYN and similar BMP programs
  - Low Impact Design (LID)
    - Green roofs, biofiltration, rain barrels, swales
    - Road design, pervious pavements, etc
- Structural
  - Treat polluted stormwater after generation
  - Retention/detention ponds
  - STAs and constructed wetlands
  - Filtration and infiltration piping

A Guide to Florida-Friendly Landscaping

Florida Yards & Neighborhoods Handbook

Florida-Friendly Landscaping for New Developments

Creating and maintaining attractive landscapes to enhance our community and to protect Florida's natural environment.

UNIVERSITY OF FLORIDA
IFAS EXTENSION

FLORIDA YARDS & NEIGHBORHOODS

Florida-friendly landscaping emphasizes **nine** major principles:

- **Right Plant, Right Place**
- **Water Efficiently**
- **Fertilize Appropriately**
- **Mulch**
- **Attract Wildlife**
- **Control Yard Pests Responsibly**
- **Recycle**
- **Reduce Stormwater Runoff**
- **Protect the Waterfront**

FYN – growing pains

- Began in 1992 with Sarasota NEP and expanded statewide in 1994 with FDEP/EPA and WMD assistance.
- Began as a very low input niche for homeowners on sensitive waterways.
- Popular, but in late 1990's some misinterpreted voluntary nature and tried to make law. This resulted in confused elected officials and legal chaos.
- Handbook recommendations were not consistent with FL Lawn Handbook.
- Did not connect with average homeowner in a pre-landscaped development.
- Did not address those who wanted conventional or high-maintenance yards.
- In 2001 was still a niche audience.

History

- January 2000 - St. Johns Co. passes “fertilizer ordinance” making it a criminal offense, *punishable by Jail,* to apply soluble fertilizer between May 15 and October 31 in certain areas.
- July 6, 2000 - Green Industry group agrees to develop BMPs for lawn maintenance.

3 major BMP audiences

- Green Industry Stakeholders agreed FYN should focus on homeowners.
- FYN needed to become more inclusive, retain ***Right Plant-Right Place*** and low-impact focus but;
  - Includ information on how to properly maintain all common FL yards w/o environmental harm.
  - Horticulturally consistent with other IFAS/DEP publications.
  - Reach out to builders and developers.
- Determined that Golf Courses need a separate manual. Too specialized a topic for others.
  - May need manual for athletic fields too.

Green Industry BMPs

- Developed by DEP for the pest control and lawn / landscape service industry with industry, agency and UF-IFAS help.
- Educational tool for elected public officials, local regulators and interested parties.
- Intended audience does not include golf courses, athletic fields, sod production (specialized areas), or individual homeowners (FYN).

FLORIDA GREEN INDUSTRIES

BEST MANAGEMENT PRACTICES FOR PROTECTION OF WATER RESOURCES IN FLORIDA

JUNE 2002

SUMMARY OF

FLORIDA GREEN INDUSTRIES

BEST MANAGEMENT PRACTICES FOR PROTECTION OF WATER RESOURCES IN FLORIDA

JUNE 2002

RESUMEN DE LAS

PRÁCTICAS MAS ADECUADAS PARA LA CONSERVACIÓN DEL AGUA EN FLORIDA

INDUSTRIAS EN ÁREAS VERDES DE FLORIDA

JUNIO 2002

GI BMP/SUM Photo

Green Industry BMPs

- Design and Installation,
- Irrigation
- Mulching, Mowing, Pruning,
- Fertilization
  - ½ lb max Soluble N, 1lb total N per application
  - P applications only with soil test
- Pest Control and Pesticide Safety

Green Industry Outreach
(Federal 319 funds)

- $250,000+ DEP Grant to IFAS for BMP Training.
- Free Online 4 CEU Course through the Green Industry Institute and NFCC.
- 75,000 manuals, 50,000 summaries in English ($125,000).
- 25,000 manuals, 25,000 summaries in Spanish ($50,000).

FYN handbook – Revised

- **FYN became more inclusive**, retained ***Right Plant-Right Place*** and low-impact focus but;
  - Included information on how to properly maintain ***all*** common FL yards w/o environmental harm.
  - Horticulturally consistent with other IFAS/DEP publications.
- Became ***the*** landscape BMP program for homeowners. Applicable everywhere in Florida so it may be used in model codes.
- Developed parallel Builder/Developer outreach program.

Best Management Practices

for the

Enhancement of Environmental Quality

on

Florida Golf Courses

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JANUARY 2007

Topics

- Introduction
- Environmental Concepts
- Environmental Monitoring
- Design and Construction
- Irrigation
- Nutrition and Fertilization
- Cultural Practices
- Lake and Aquatic Plant Management
- Turfgrass Pest Management
- Pesticide Management
- Maintenance Operations

Turf & Fertilizer Research
(Florida Forever TMDL funds)

- 3.5 million (2.2 so far) to UF-IFAS for evaluation of leaching and runoff under various fertilization & irrigation practices to confirm/improve BMPs for several grass species.
- Hurricanes have delayed project at all 3 sites (Davie, Citra, Jay) but year one and two data is being analyzed by IFAS.

Florida Friendly Lawn & Landscape Model Ordinance Guidelines for Water Quality and Quantity

Sept. 2003

Key Provisions

- Applies to homeowners and commercial property / developers / professional services.
- References BMPs
  - Green Industry BMPs for professionals
  - FYN for homeowners
- Irrigated turf and other high water use plants are limited. % varies with local needs.

Key Provisions

- Fertilization according to G.I. BMPs for professional services, FYN for homeowners, based on UF-IFAS rates.
- Education program with Extension Service, WMDs, DCA. $253,000 DEP/EPA Grant
- Minimum 4 PDHs required for occupational license or renewal for landscape maintenance service.
- Requires employee training.
- List of incentives.

FLORIDA'S STORMWATER RULES

1979 Chapter 17- 4.248, F.A.C.

1982 Chapter 17- 25, F.A.C.

1994 Chapter 62- 25, F.A.C.

Water management district ERP rules

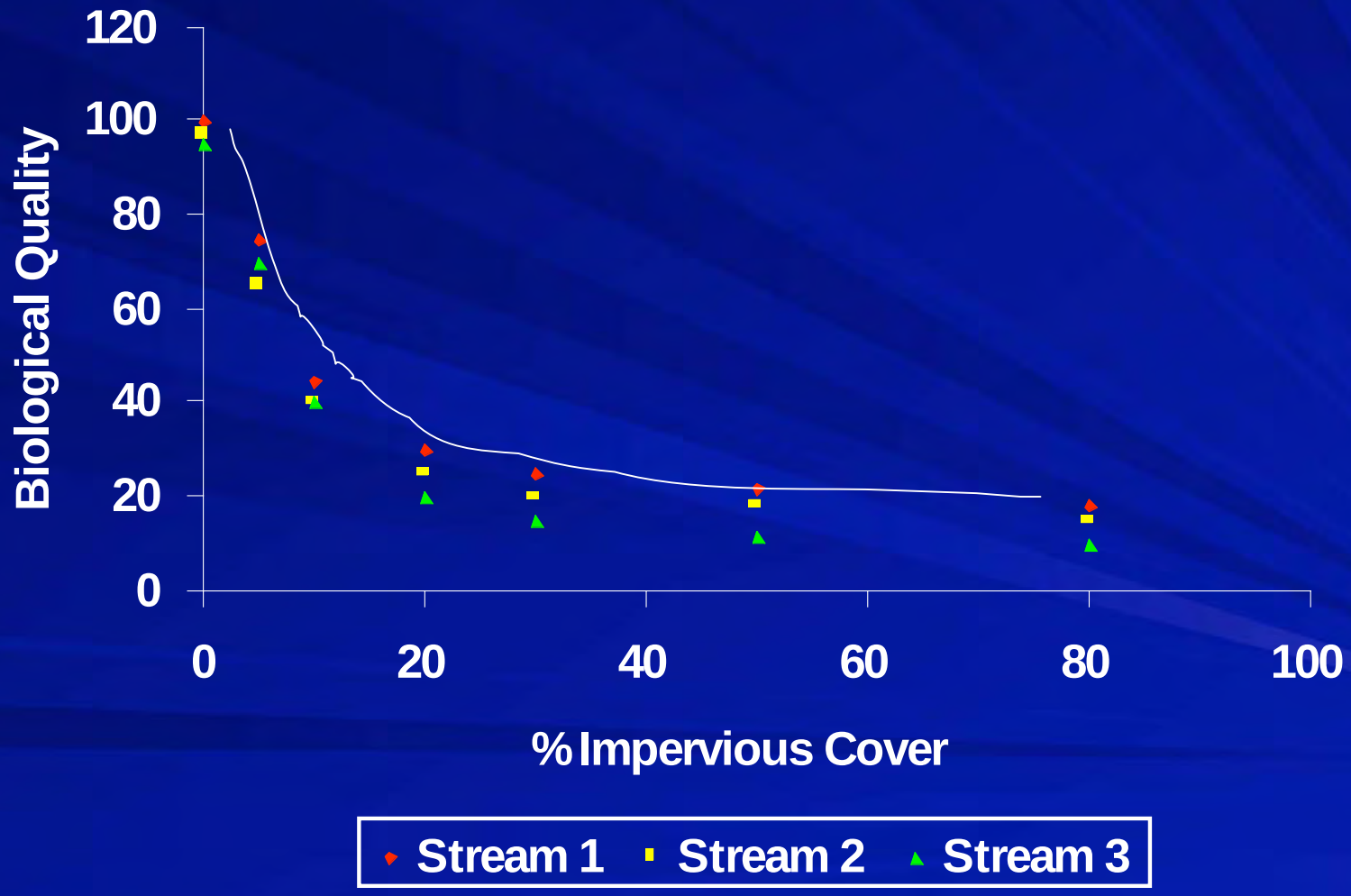
TECHNOLOGY BASED

- **Performance Standard**
- **BMP Design Criteria**
- **Presumption of compliance**

HIGHER LEVELS OF STORMWATER TREATMENT NEEDED – WHY?

- Nutrient impaired surface waters (TMDLs)
- Elevated nitrates in springs
- Harmful algal blooms
- Lake Okeechobee Protection Act
- LOER Inititative
- SW Florida EIS/EPA refusal to accept SFWMD stormwater permits as “401 WQ certification”
- Continuing high growth rate – cumulative effects

RELATIONSHIP OF IMPERVIOUSNESS TO BIOLOGICAL COMMUNITY HEALTH



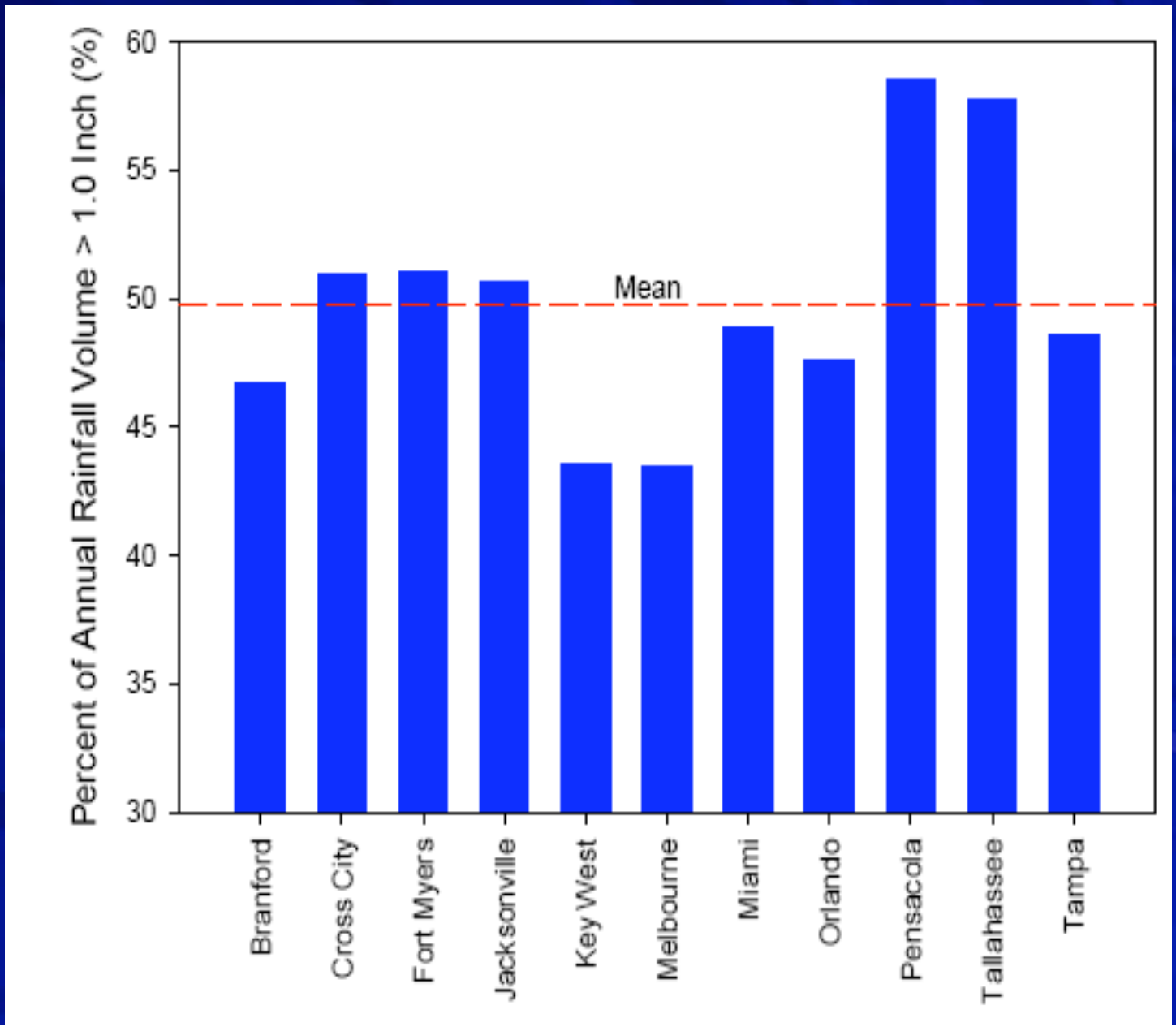
MAJOR FINDINGS – TREATMENT LEVELS

- Current rules do not get 80% nutrient treatment
- Recommends that the Performance Standard should be post-development nutrient load = pre-development nutrient load
- If set to 80%, BMPs will provide much higher TN removals than needed
- If set to 95%, BMPs will provide much higher TN and TP removals than needed

LIMITS OF STRUCTURAL STORMWATER MANAGEMENT

- Limited treatment capabilities
- Lack of flexibility in site design
- Loss of useable land area
- Connection of impervious areas
- Disregard site resource benefits
- Altered site hydrology/pollutant loads
- Cost
- Maintenance obligations

% Of Annual Average Rainfall Volume Generated by Storms >1 inch



EVOLUTION FOR STORMWATER / WATERSHED MANAGERS

- It’s the volume!
- Secondary treatment inadequate
- Structural BMPs have limitations
- Return to basics
- Multiple objectives
- Stormwater is an asset

THE SOLUTION?

STATEWIDE STORMWATER TREATMENT RULE

POST ≤ PRE

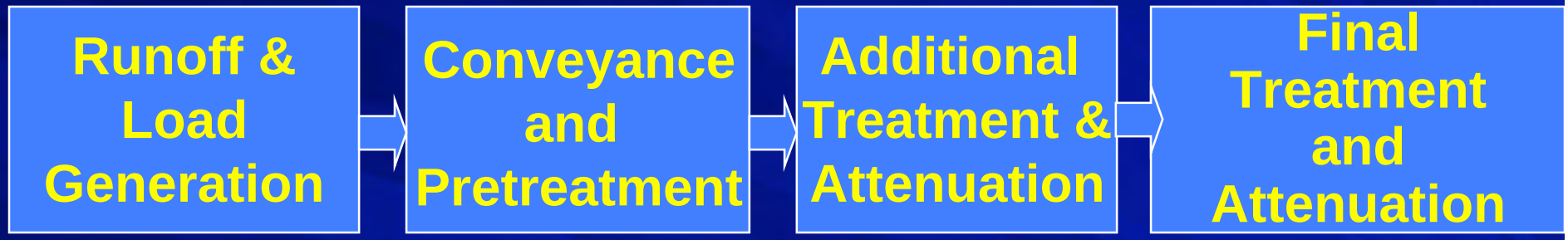
- **Peak discharge rate**
- **Volume**
- ***Pollutant loading (nutrients)**

POST ≥ PRE

- **Recharge**

***In effect in Lake Apopka, Lake Okeechobee, and SW Florida**

BMP TREATMENT TRAIN REQUIRED FOR WET DETENTION



- Source controls
- Public ed
- Erosion control
- Roof runoff
- Florida Yards
- LID

- Swales
- Catch basins
- Filter inlets
- Oil/water separators

- Storage tank
- Sediment sump
- Alum/PAM

- Retention
- Detention
- Wetlands

RETURN TO BASICS: FOCUSING ON POLLUTION PREVENTION

Reduce stormwater volume

- Conservation or Low Impact Design
- Reduce Directly Connected Imp. Area
- Stormwater reuse

Reduce stormwater pollutants

- **Source controls (FYN, street sweeping)**
- **Operation and maintenance**

Retain/enhance natural stormwater system

- **Riparian buffers, revegetation**
- **Wetland and floodplain protection**
- **Protect and plant vegetation**

Low Impact Development

- Comprehensive approach
- Hydrology is integrating framework
- Micro-scale or precession management
- Control stormwater at the source
- Use simple, nonstructural methods
- Decentralized / disbursed flows
- Create multifunctional landscape and infrastructure

Pollution and Hydrologic Prevention

LID IMPEDIMENTS IN FLORIDA

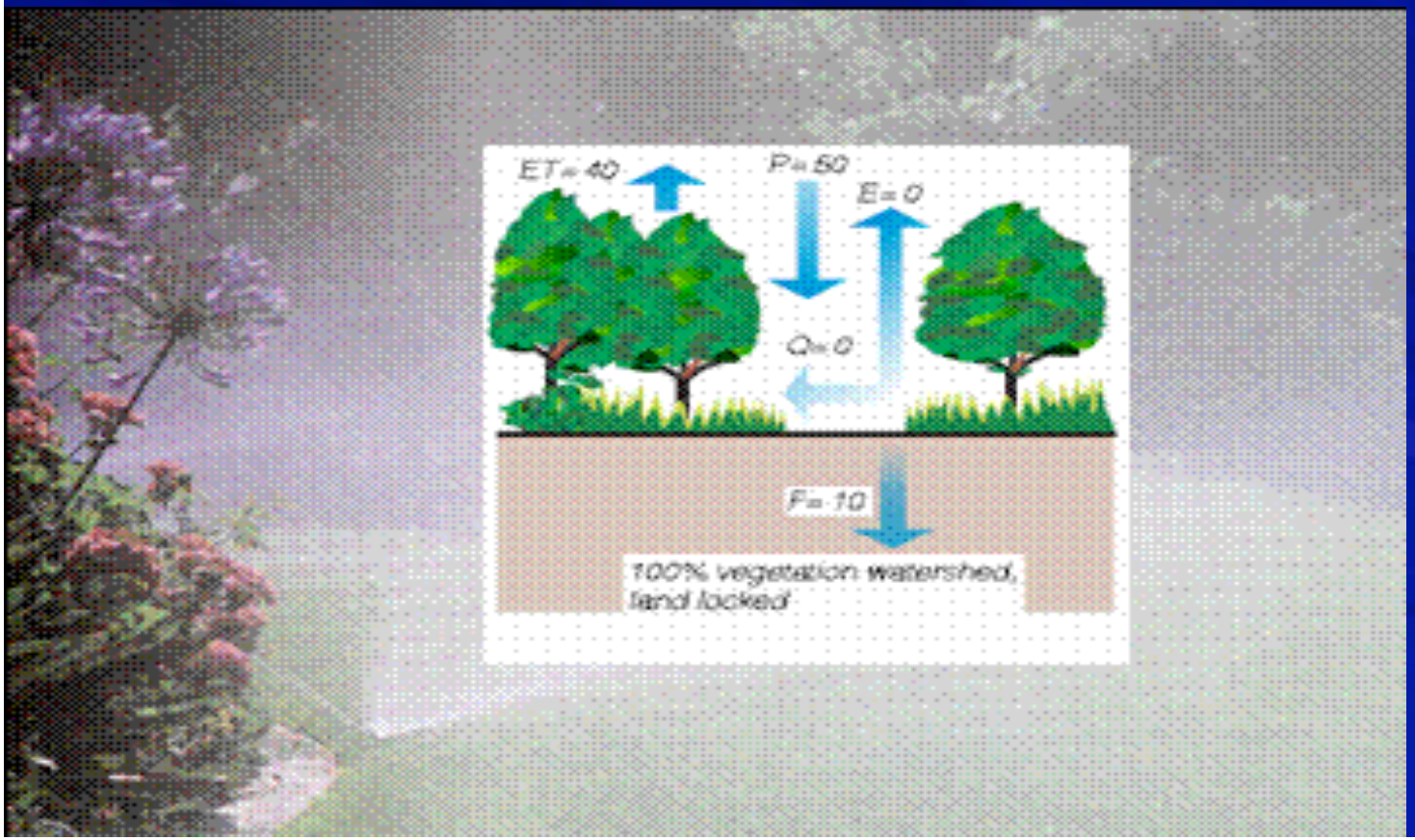
- Effectiveness data
  - FYN, green roofs
  - Swales, rain gardens
  - Pervious pavement
  - Stormwater reuse
- State stormwater regulations
- Local land development regulations

KEY ELEMENTS FOR RESTORING YOUR COMMUNITY'S WATERS
Reducing Impacts from New Development

- Revise Land Development Regs - Promote Low Impact Design
  - Minimize clearing, protect vegetation
  - Promote clustering
  - Reduce imperviousness
  - Save the swales
  - Landscaping per FYN Program, Green Industry BMP Program
  - http://www.dep.state.fl.us/water/nonpoint/pubs.htm
  - Expedited approvals

STORMWATER REUSE

- Irrigation uses nearly 50% of the potable supply
- Potable supplies are decreasing
- Reclaimed water is being used to a maximum
- Thus use stormwater to irrigate



Maintain the Balance

LOW IMPACT DESIGN – WHY?
COST SAVINGS

Cost Savings

- Less ponds
- Less piping
- Fewer structures
- Less curb / gutters
- Less paving
- Less grading
- BMP maintenance
- Energy conservation

Cost increases

- Design
- Grading
- Site Investigation
- Landscaping
- Maintenance

http://www.dep.state.fl.us/water

- Click on: NonPoint Source Management

Contains:

- BMP Manuals
- Section organization and programs
- Publications and training aids
- Links
- FAQ,s
- E-mail us

Contact

- Mike Thomas, FDEP
  - (850) 245-7513 or SC 205-7513
  - FAX: (850) 245-8434 or SC 205-8434
  - Email: michael.thomas@dep.state.fl.us


LET ONLY RAIN
DOWN
THE STORM DRAIN