Reducing phosphorus use in lawn care: Getting information to the right place

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Phosphorus Levels in Lake Champlain 1990-2003
Compared with Water Quality Criteria (red lines)

Note: ug/l = micrograms/liter

Missisquoi Bay
Criterion = 25 (ug/l)

St. Albans Bay
Criterion = 17 (ug/l)

Northeast Arm
Criterion = 14 (ug/l)

Mallets Bay
Criterion = 10 (ug/l)

Burlington Bay
Criterion = 14 (ug/l)

Shelburne Bay
Criterion = 14 (ug/l)

Otter Creek
Criterion = 14 (ug/l)

*average of two stations

Eutrophic State (mg/l)
0-10: Oligotrophic
low algae growth & high water clarity
11-20: Mesotrophic
moderate algae growth & water clarity
21+: Eutrophic
ecessary algae growth & low water clarity

Map by LCBP
DATA SOURCE: VERMONT DEC
Phosphorous in Urban Storm Water

- Urban areas are 5.6% of lake watershed
- Contribute 37% of total annual P load
- Over 75% of P load is urban in some basins
- Lawn and garden fertilizer a principal source of P in urban stormwater
The Problem

- In 1996, Vermont was one of three states with greater than 30% non-farm fertilizer use.
- 2003: 60% of lawns tested statewide and 76% of Chittenden County had an excess of phosphorous.
Why the Coalition?

- Lots of activity – but not effective
- **Focus**: Dispersed, uneven
- **Educators**: lacked training, not fact based, redundant, unclear/unfocused messages
- **Methods**: output focus, no central information source;
- **Effectiveness**: inefficient (effort/cost per unit contact hour), ineffective (measurable behavior change)
Green Lawn Coalition

- Founded in 2002
- **Goal:** Science based information and education on sustainable lawn care practices
- **Long Term Objective:** Reduce inputs of fertilizer, pesticides and pathogens in developed areas to storm water runoff.
Near-Mid Term Objectives

- Establish a coalition of existing groups
- Community-level water quality data
- Neighborhood-based outreach
- Facilitate towns - community group partnerships
- Monitor water quality
Strategies

- Focus on phosphorous
- Treat P fertilizer as a commercial product
- Social marketing to understand consumer behavior, effect change
- Regional scope and objectives
- …but an “All outreach is local” focus
- Science based, non-advocacy approach
- Reach the decision makers
Who to Target = Who Decides

- Homeowners
- Resident associations (condos, apartments)
- Businesses and non-residential entities
- Service providers
- Municipalities
- State and local officials: elected and staff
Homeowners:

- Male, 29-45,
- DIY

Drivers of behavior:

- Cost
- Ease of use
- Outcome
- Local water quality
- “Fitting in”
Factors Affecting Change of Practice

- Cost
- Application
- Ease of application
- Appearance
- Lawn quality
- Water
- Time needed

Agree/strongly agree
Neutral
disagree/strongly disagree
Respondent’s Level of Agreement that they Want their Lawn to Look Good Enough to Fit in with the Community

“Fitting In”

<table>
<thead>
<tr>
<th>Percent</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>2.2%</td>
<td>8.1%</td>
<td>20.5%</td>
<td>55.6%</td>
<td>15.6%</td>
</tr>
</tbody>
</table>
BUT…

High effort, cost to reach audience.

Alternatives to direct education:

- Empower outreach by local organizations
- Design really effective Public Awareness
- Point of sale education: consumers and retailers
Support outreach by local groups

- We prepare them, they do the outreach
- Training, demonstrations, materials, information, evaluations, website
Public Awareness

- Market research based
- Professionally designed
  - PSAs
  - Posters and signs
  - Brochures
- Lawn to Lake web page
- Social media

WHEN YOU’RE FERTILIZING THE LAWN, REMEMBER YOU’RE NOT JUST FERTILIZING THE LAWN.

You fertilize the lawn. Then it rains. The rain washes the fertilizer along the curb, into the storm drain, and directly into our streams, rivers and Lake Champlain. This causes algae to grow, which when it dies uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

For more information about local watershed groups or the Lake Champlain Basin Program, call 1-800-468-5227 or visit our web site: www.lcbp.org. The Lake Champlain Basin Program thanks the Washington State Department of Ecology, King County and the cities of Bellevue, Seattle and Tacoma for this poster design.
DON'T P ON YOUR LAWN!

“P” stands for phosphorus—the most problematic pollutant in Lake Champlain and in many other lakes in Vermont and northern New York. Phosphorus is a nutrient found in most lawn and garden fertilizers. When fertilizers run off from lawns and into lakes, they feed unsightly, smelly and potentially toxic blue-green algal blooms.

Make a Switch! It’s easy for home owners and businesses to switch to P-free (phosphorus-free) lawn fertilizers to reduce urban sources of phosphorus. Doing so may help reduce algal growth in your favorite lake—and you can still have a beautiful lawn!

- Lawn care tips for green lawns, not green lakes >>
- Where to buy P-free fertilizers >>

News & Media

Phosphorus fertilizer signs available to Vermont retailers, 1/17/12
Free point of sale materials for retailers
“Don’t ’P’ on the lawn,” Burlington Free Press 2/28/10
Water Quality Improves After Lawn Fertilizer Ban. Study Shows Science Daily 8/27/09
“It’s Easy Being Green,” WCAX News, 5/14/08
VT Agency of Agriculture PSAs (Windows Media Videos)
- Responsible Fertilizer Use (3 MB)
- Don’t P on Your Lawn! (3 MB)
NEWS: Switch to Phosphorus-Free Fertilizer for Fall Lawn Care [8/28/07]
“Critical lawn-care season arrives now” by Amy Ivy - Press Republican 8/25/07

WEB PAGE for fact-base information

LAWN TO LAKE
LAWN CARE TIPS FOR GREEN LAWNS NOT GREEN LAKES!
**Fact Sheets and Brochures**

**What is Phosphorus?**

Phosphorus (P) is one of the most troublesome pollutants in stormwater runoff. It is the primary cause of water quality problems in Lake Champlain and many other local lakes and rivers. About 37% of Lake Champlain's phosphorus problem comes from neighborhoods and cities.

Phosphorus is found in lawn and garden fertilizers, manure, as well as human and animal waste. Too much phosphorus in water feeds algal blooms and weed growth. These plants and the water quality problems that occur when they decompose can harm fish and other animals and limit everyone’s use and enjoyment of the water.

When it rains, fertilizer and other pollutants from lawns are washed into storm drains that empty into lakes and rivers.

**Resources**

- **Phosphorus-free fertilizer:**
  - Ask your local store to carry P-free products or look up retailers at www.lcbp.org/lawn.htm.
- **Soil testing:**
  - University of Vermont Extension (802) 656-3030 or pss.uvm.edu/ag_testing/?Page=soils.html
  - Cornell Nutrient Analysis Labs www.css.cornell.edu/soiltest/thewindex.asp (807) 255-4540
- **Lawn care tips, organics and pest management:**
  - Vermont Master Gardener Helpline (800) 639-2230 or www.uvm.edu/mastergardener
  - Cornell Home Gardening www.gardening.cornell.edu/lawn
  - Cornell Cooperative Extension Growline Plattsburgh: (518) 561-7450, Westport: (518) 962-4810 or askMG@cornell.edu
- **Safe Lawns**
  - www.safelawns.org
- **Stormwater runoff:**
  - Regional Stormwater Education Program www.smartwaterways.org
  - Vermont Clean and Clear www.anr.state.vt.us/cleanandclear

**Don’t “P” on Your Lawn!**

and other lawn care tips for green lawns, not green lakes

Phosphorus (P) is a plant nutrient found in lawn fertilizer that feeds algal blooms in waterways. Create a beautiful lawn and keep “P” from polluting water by using P-free fertilizers and following these tips...

Brought to you by:
- Cornell Cooperative Extension Lake Champlain Basin Program
- Lake Champlain Committee
- Lake Champlain Sea Grant / UVM Extension
- VT Agency of Agriculture
- VT Department of Environmental Conservation

Additional support from USDA CSREES under Agreement No. 2004-51190-10196.
Point of Sale Intervention

- Sell the manager:
  - Product available and visible
- Promote alternative product

Consumer information:

- Signs
- Train sales staff
- Fact sheets
Associations, Businesses and Institutions

- One Decider
- Contracted lawn care
- Market No P to property managers
Stewards and Friends

**Market:** One on one introduction

**Educate:** manager and/or owner

**Train:** service providers

**Support:** guidelines, web page, professional support
Englesby Brook

- Small (570 acres)
- ~750 properties
- 73 non-residential properties (~131 ac.)
- Non-residential lawn area ~80 ac.
No P Adoption

- 29% adoption rate (20 of 73 properties)

- 59% (47 of 80 acres) of commercial lawn area in no P 3+ years after outreach

- 2 grounds care companies adopted no phosphorous/low input practices
Assisting Towns

- No phosphorous in parks, schools
- Satisfy public awareness requirement for stormwater permits

Rutland Good Stewards Initiative

Healthy Lawns, Healthy Streams

Guide to Moon Brook-Friendly Grounds Care
Service Providers

- Education: Focus on bottom line, consumer demand
- Training in low input, no phosphorous methods
- Support adopters
The Future of Lawn Care

- Increasing regulation to control nutrients in stormwater
- Rising costs of chemical fertilizer
- More profit with organic/lower input lawn care practices
- New organic products and services to sell
- Growing demand by aware consumers—"if you won’t someone else will."
What We Can Do For You

- We provide the information to convert the consumers, landscapers provide the service
- Small business management workshops to improve profits
- Organic/Low Input practices training
- IPM training
- Tailored promotional materials
- Applied research on the most appropriate successful practices
Figure 1 below shows that there is a general downward trend in the amount of non-farm phosphate brought into Vermont since 2003.

![Graph showing Non-Farm Phosphate sold in VT by Year]

Figure 1.
Figure 2 below shows that there has been a dramatic increase in the number of lawn care fertilizer products registered for sale in Vermont that contain no phosphorus.
Legislation

- VT and NY: As of January 1 2012 use of phosphorous fertilizer restricted in both states
- Exceptions: on new lawns or when a test shows a need
- Does not affect fertilizer for agriculture or gardens.
“The law ... came in the wake of a campaign called “Don’t ‘P’ on your lawn”...” Addison County Independent April 23, 2012 May 5, 2012

“The “Don’t P” campaign was the inspiration for this legislation...” Chair of the VT House Fish Wildlife and Water Resources Committee
Not everyone was happy, though….

“It came in the wake of a REPULSIVE ENVIRO-LUNATIC CAMPAIGN called « Don’t “P” On Your Lawn » which was organized by Lake Champlain Environmental-Terrorist-Organizations to MIS-INFORM home-owners against the use of phosphorus fertilizers…”

http://pesticidetruths.com, Motto “Fertilizer terror never ends”
NEW LAW PROTECTS WATERWAYS!

Phosphorus runoff poses a threat to water quality. Most Vermont lawns do not benefit from fertilizer containing phosphorus. Under Vermont law, fertilizer containing phosphorus shall not be applied to lawn unless applied to new lawn or lawn that is deficient for phosphorus as indicated by a soil test.

– Sec. 1 10 V.S.A. § 1266

Look for the “Zero”
The three numbers on fertilizer bags show the N-P-K nutrient analysis. The middle number is the phosphate (phosphorus) content. A “zero” in the middle means it is phosphorus-free.

We can all work toward healthier Vermont waterways!