



**LAWN TO LAKE**  
*midwest*

# Natural Lawn care practices for Clean Lakes

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# Outline

- Lawn care as an **urban runoff** issue
- Conventional **vs.** natural approaches
- Promoting **healthy environments** with Lawn to Lake

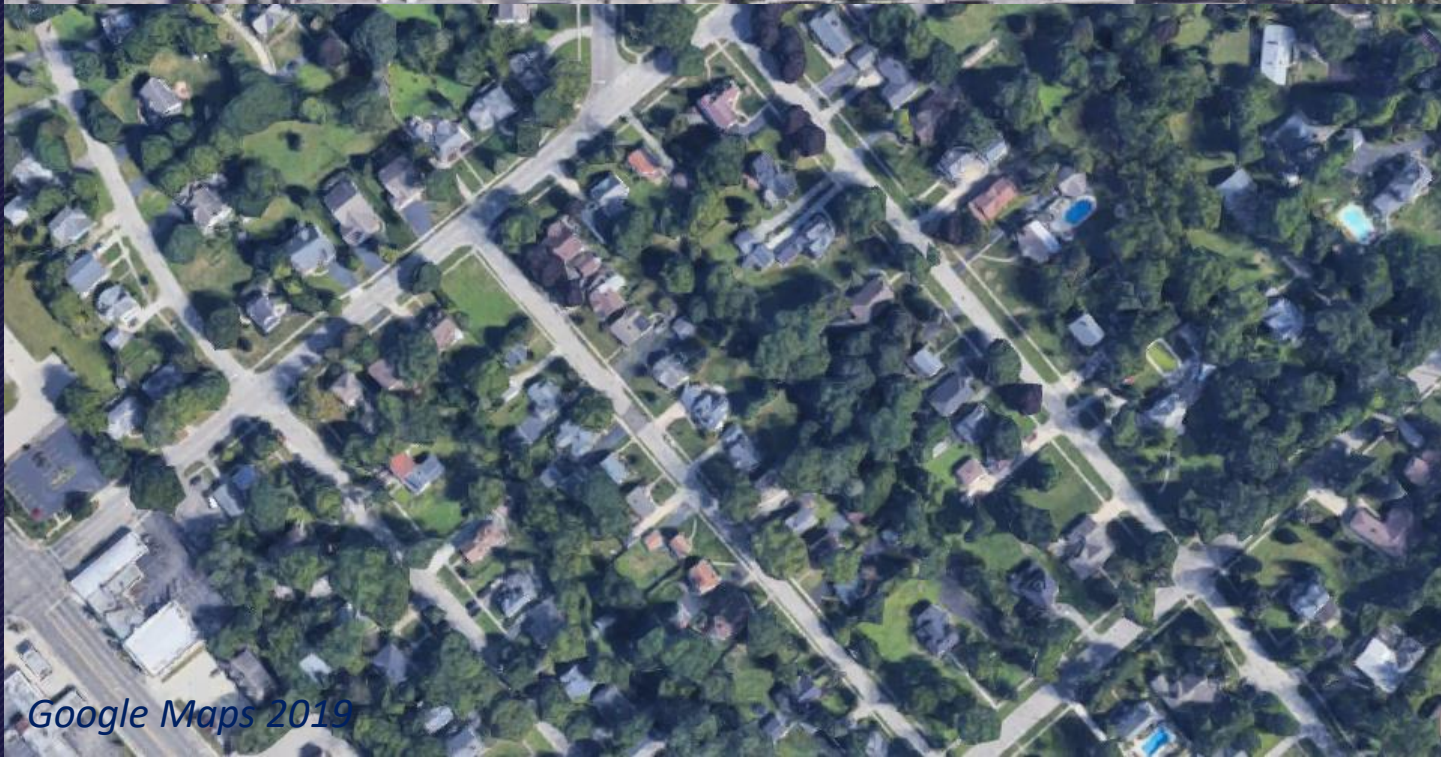


*Google Maps 2019*



Chicago, IL

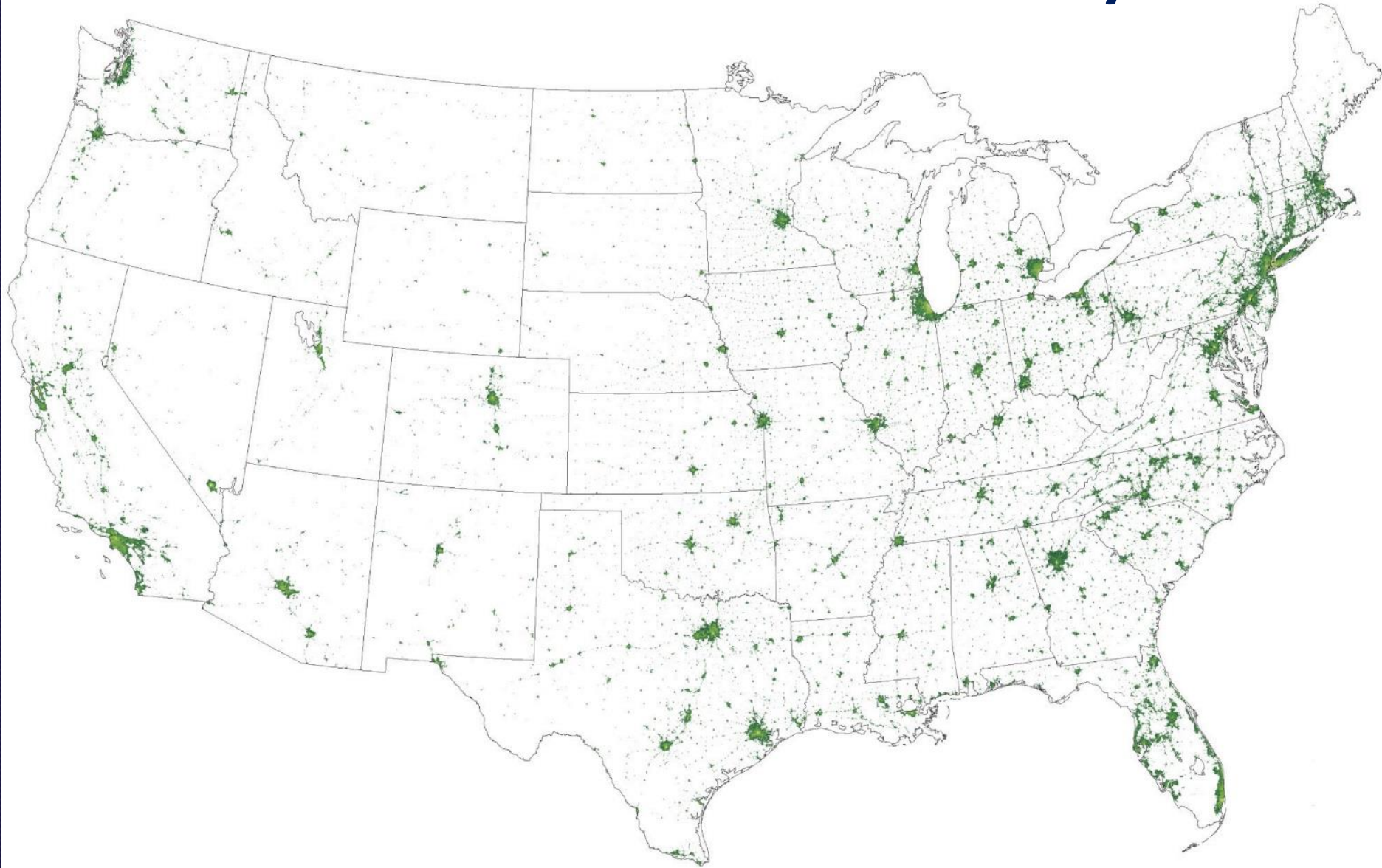
*Google Maps 2019*



Crystal Lake, IL

*Google Maps 2019*

# United States land surface covered by lawns



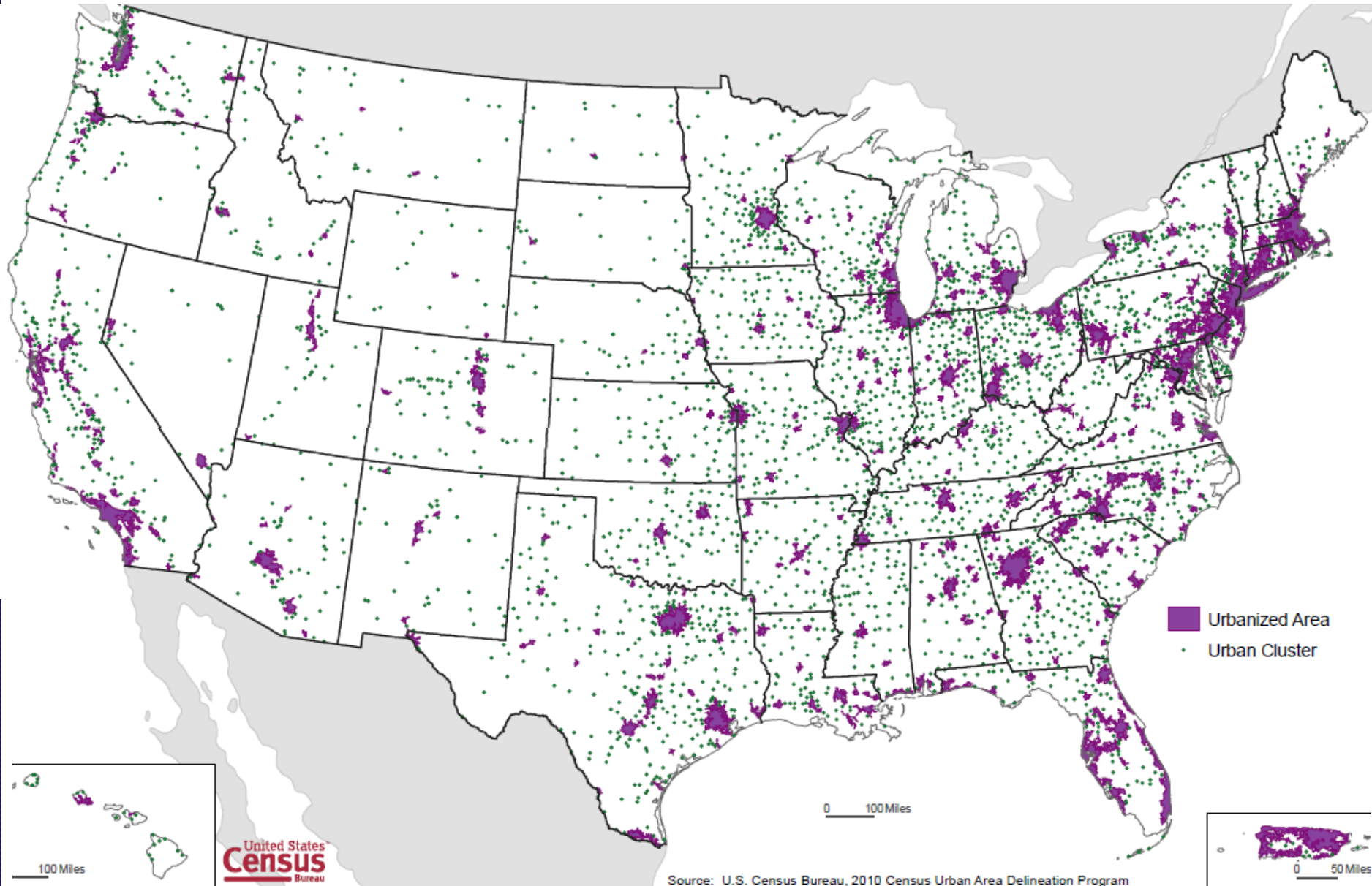
NASA Earth Observatory

0.0

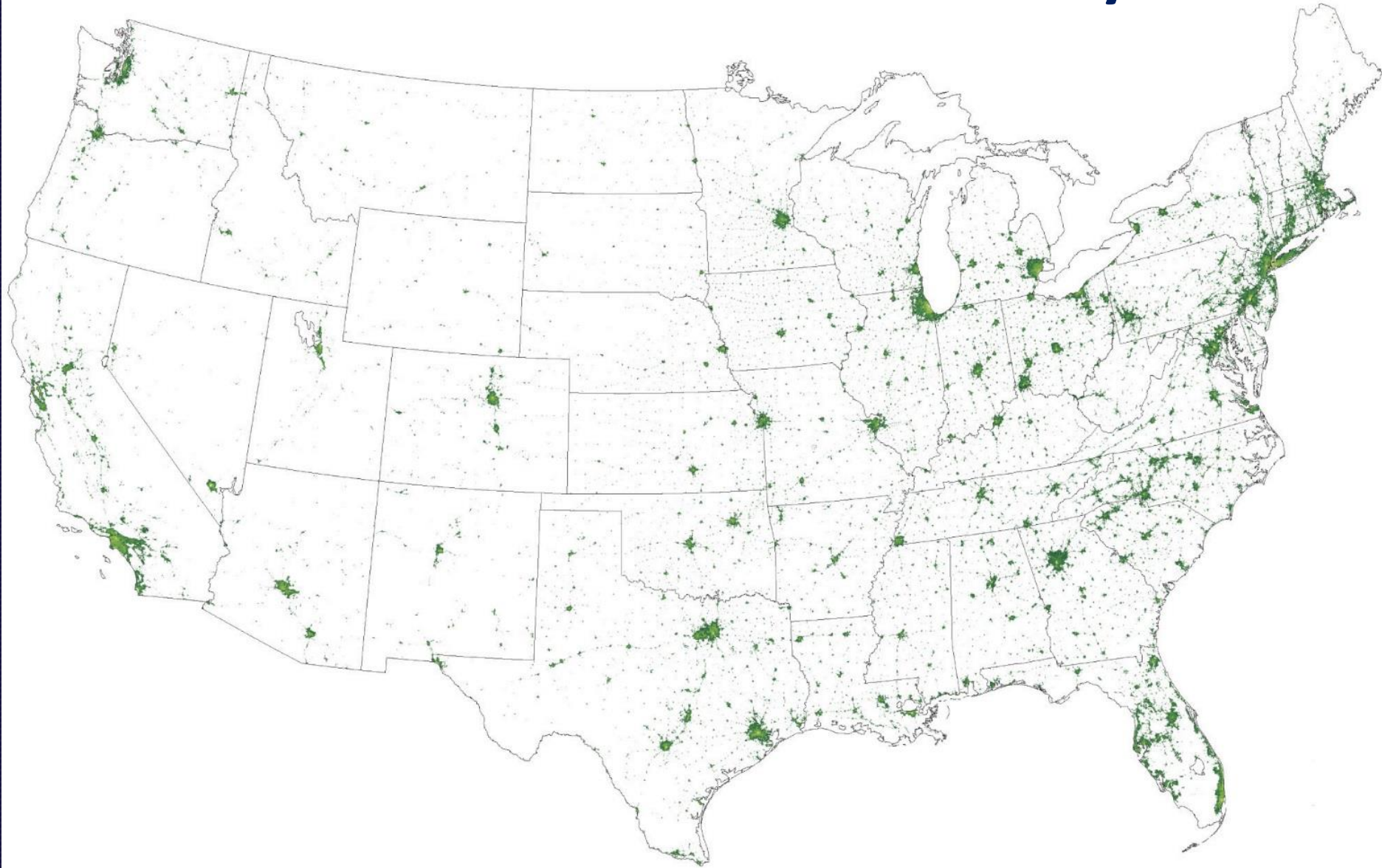
Fractional Turf Grass Area

1.0

# Urbanized Areas and Urban Clusters: 2010



# United States land surface covered by lawns



NASA Earth Observatory

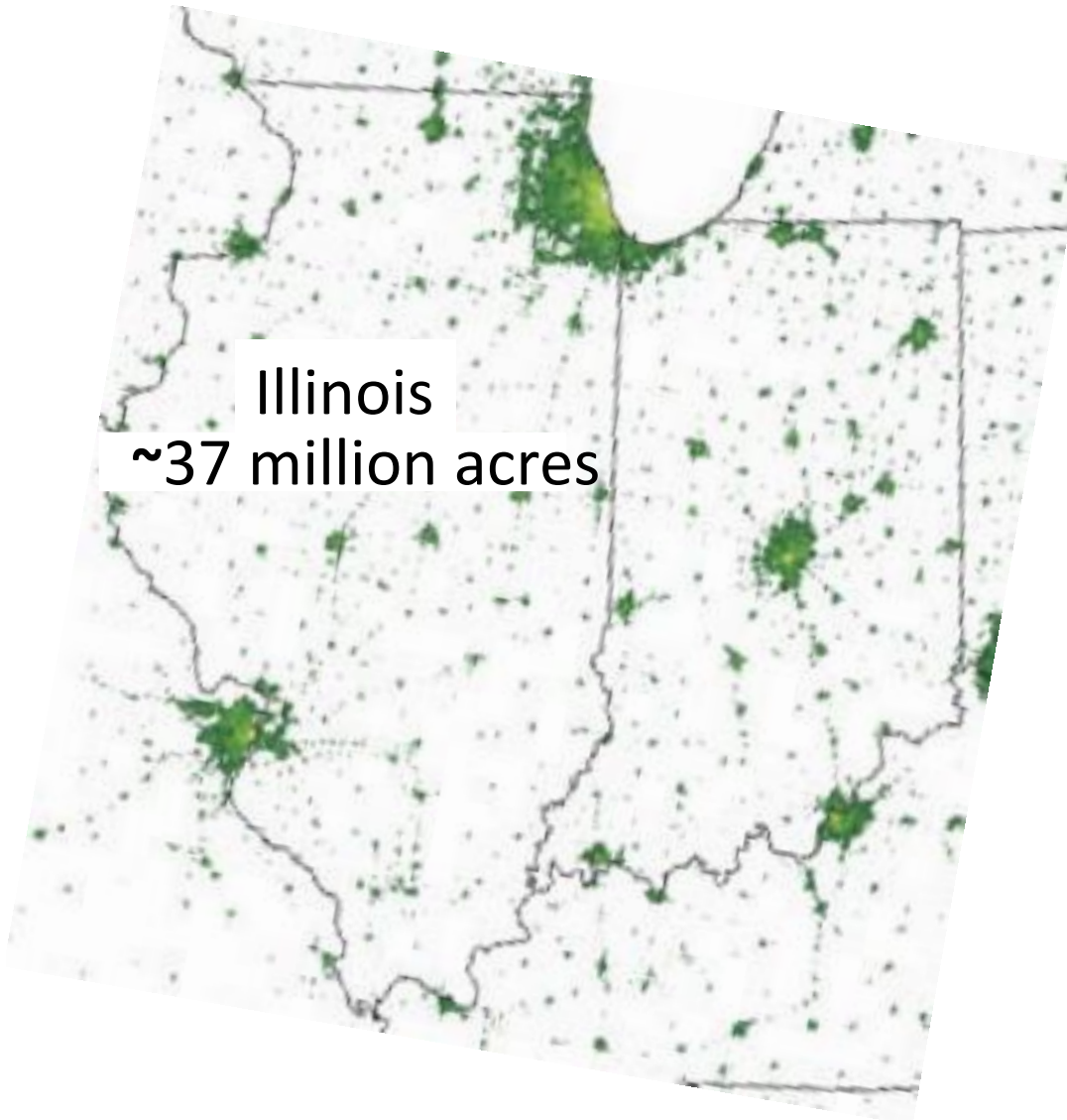
0.0

Fractional Turf Grass Area

1.0



# 40 million acres of turf grass in the U.S.



- Turf grass covers **3 times** more area than irrigated corn
- Which would make lawns the single **largest irrigated crop**

# Hidden Costs of Lawn Care

*average upkeep for residential lawns*

## Water

- ◆ Typical suburban lawn uses **10,000 gallons** of irrigation water per year
- ◆ Residential lawns consume **2.5 billion gallons** per year

*Vickers, A., 2006*

## Energy

- ⚡ A **580 millions gallons** of gasoline used in lawnmowers
- ⚡ **270,000 BTUs** to produce a 100 lb bag of 6-6-6 fertilizer

*Perry, L. 2006*

## Pesticides

- ✦ **67 million pounds** of synthetic pesticides on residential lawns each year
- ✦ Homeowners use **3 times more** pesticide per acre than farmers

*Bormann F.H. et al, 1993*

## Fertilizer

- ✦ **3 million tons** per year applied to residential lawns

*Wilson and Boehland, 2009*

# Excess nutrients in water



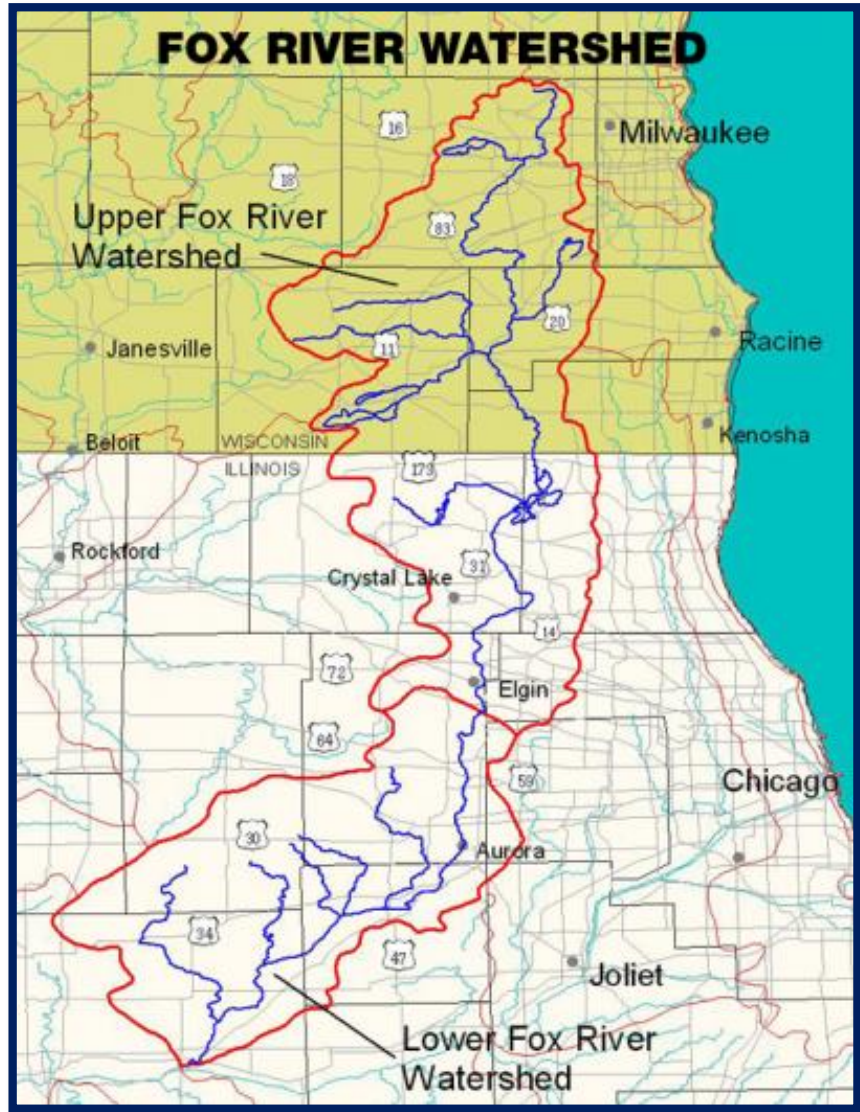
*Todd Marsee, Michigan Sea Grant*

# Pesticides

*“a pesticide by any other name...”*

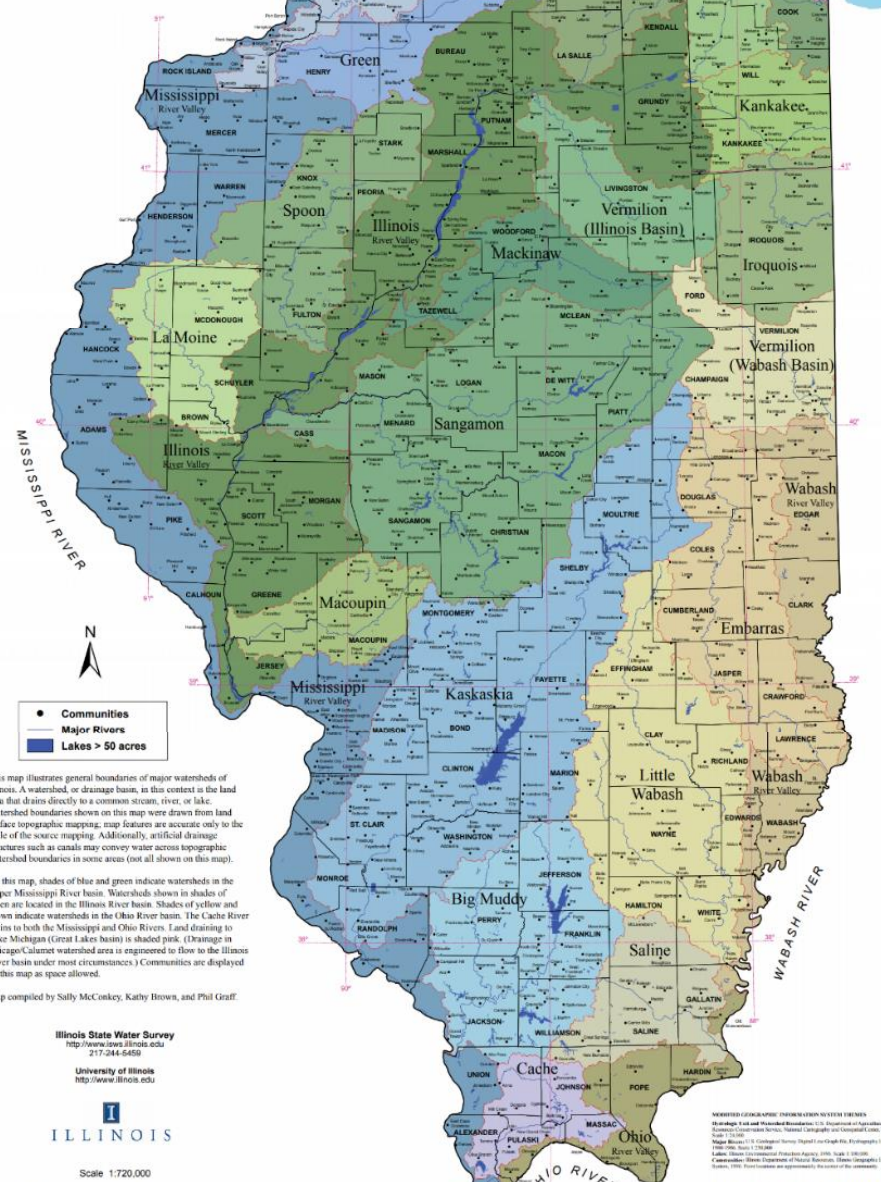
Grub Control	:	Insecticide
Broadleaf, dandelion spray	:	herbicide
Weed and Feed	:	herbicide (combined with fertilizer)
Fungal Control	:	fungicide





# Major Watersheds of Illinois

Illinois State Water Survey



This map illustrates general boundaries of major watersheds of Illinois. A watershed, or drainage basin, in this context is the land area that drains directly to a common stream, river, or lake. Watershed boundaries shown on this map were drawn from land surface topographic mapping; map features are accurate only to the scale of the source mapping. Additionally, artificial drainage structures such as canals may convey water across topographic watershed boundaries in some areas (not all shown on this map).

On this map, shades of blue and green indicate watersheds in the Upper Mississippi River basin. Watersheds shown in shades of green are located in the Illinois River basin. Shades of yellow and brown indicate watersheds in the Ohio River basin. The Cache River drains to both the Mississippi and Ohio Rivers. Land draining to Lake Michigan (Great Lakes basin) is shaded pink. (Drainage in Chicago/Calumet watershed area is engineered to flow to the Illinois River basin under most circumstances.) Communities are displayed on this map as space allowed.

Map compiled by Sally McConkey, Kathy Brown, and Phil Graft



# What is Natural Lawn Care?

*focusing on sustainable solutions*

## Natural

- ✔ soil care is foundation
- ✔ natural, organic products (*when needed*)
- ✔ treats problems, not symptoms

## Conventional

- ✘ one-size-fits-all approach
- ✘ focus on applying products to all lawns
- ✘ treats symptoms for short-term fixes



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# Lawn to Lake: Goals

**Inform homeowners and communities** how actions we take on land have effects on our watersheds.

**Offer resources** to encourage adoption of sustainable lawn and landscaping practices.



# Watershed Perspective

What you do on the **land**...

- Apply fertilizer and pesticides
- Water your lawn and garden
- Plant choice

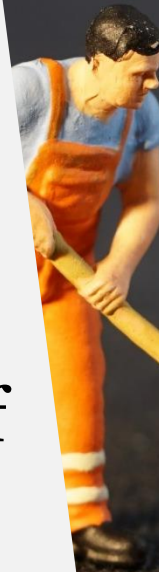
Has effects on **watershed**...

- Nutrient and chemical runoff
- Consumes water
- Maintenance needs, storm water infiltration, etc.

# Natural Lawn Care

## Principles

1. Right plant, right place
2. Fertilize appropriately
3. Manage lawn pests responsibly
4. Water efficiently
5. Compost
6. Attract wildlife
7. Reduce storm water runoff



# Nurture the Soil

Take a soil test!

- Every 2-3 years
- See what's there, restore balance

**Table 1.**  
Nutrient composition of some organic materials used as fertilizer

MATERIAL	N	P	K	RELATIVE AVAILABILITY
Alfalfa pellets	3	0.5	3	Slow
Blood meal	13	2	0.5	Medium/rapid
Bone meal	0.5-6	15-34	0	Slow
Compost	1-3	0.5-1	1-2	Slow
Fish emulsion	3-5	1-2	1-2	Rapid
Soybean meal	6-7	1-2	2	Slow/medium
Rock phosphate	0	20-32 (2% avail.)	0	Slow

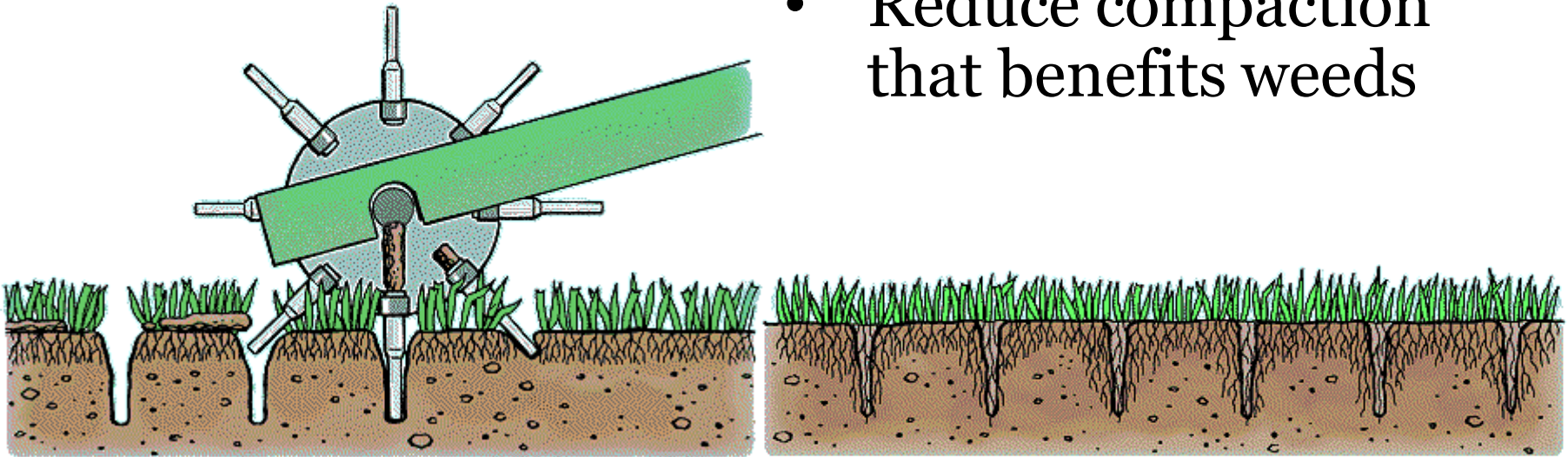
Source: Adapted from Purdue University Extension Service: Organic Vegetable Production



# Nurture the Soil

Aerate in the fall

- Increase air spaces for root growth
- Improve water infiltration
- Reduce compaction that benefits weeds

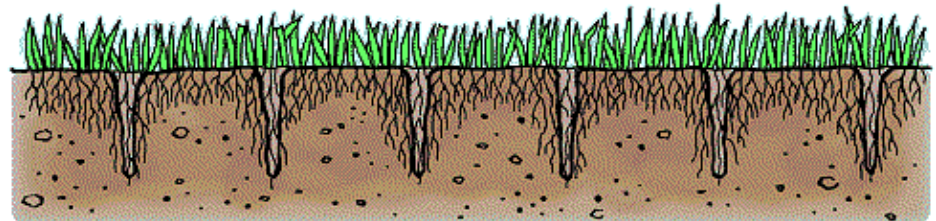


# Nurture the Soil

Topdress with compost, overseed



- Increase organic matter
  - holds more water
- Add beneficial microbes
- Improve water infiltration



# Mow Properly

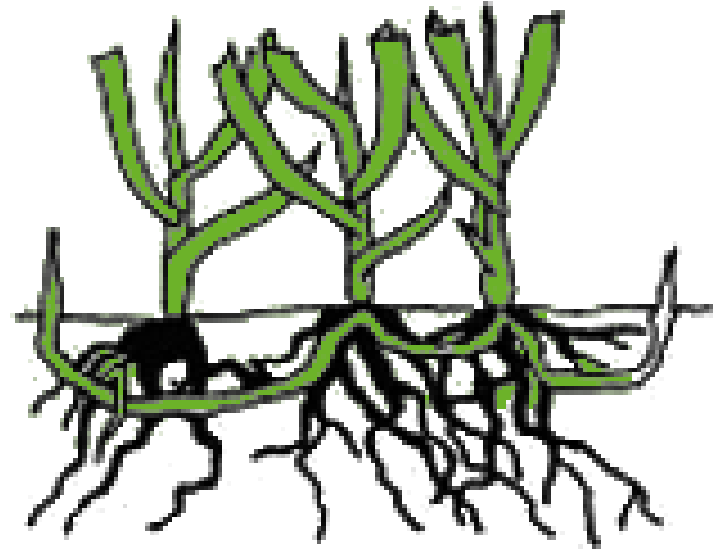
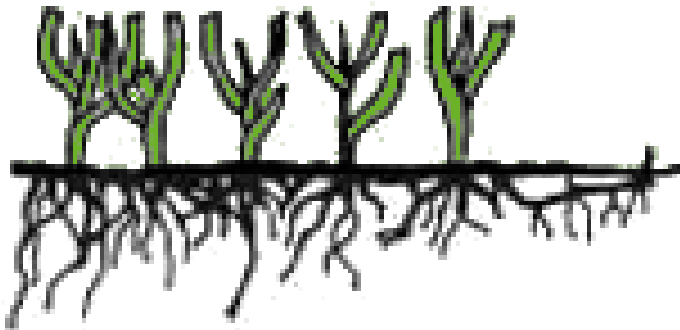
- Mow to 3 - 3 1/2 inches tall
- Use a sharp blade
- Cut only the top 1/3 at any time
- Leave clippings on the lawn



# Mow Properly

Raise the blade to 3"

- Increases root depth
- Enhances photosynthesis
- Shades out weeds





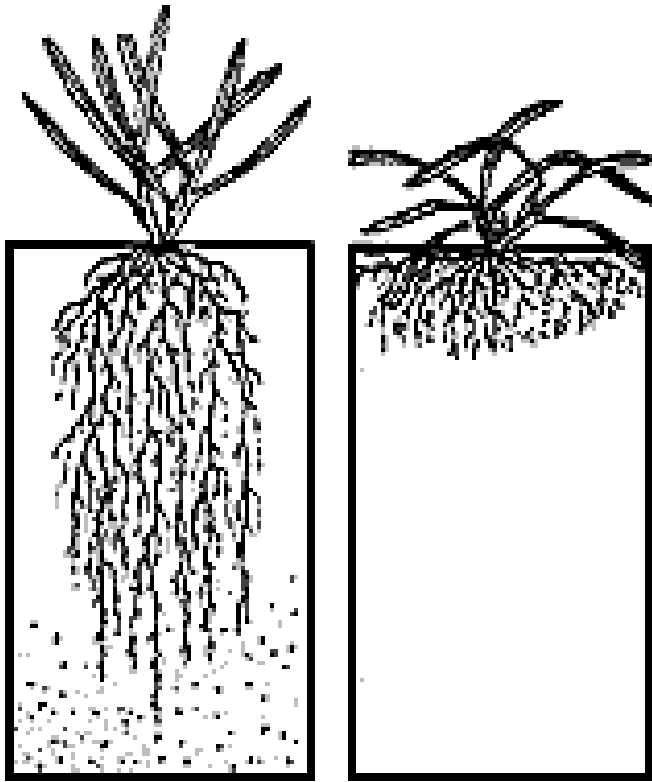
# Mow Properly

Leave the clippings



- Adds organic material to soil
- Adds nitrogen to soil
- Does NOT cause thatch

# Water efficiently



- 1” of water is needed per week (includes rain)
- Water deeply and infrequently
- Water in the morning
- Let lawn go dormant in summer

# Water efficiently

1" preferably ON the lawn



# Water efficiently

1" preferably ON the lawn



# Just remember, **3" LAWNS**

**3"** mowing height

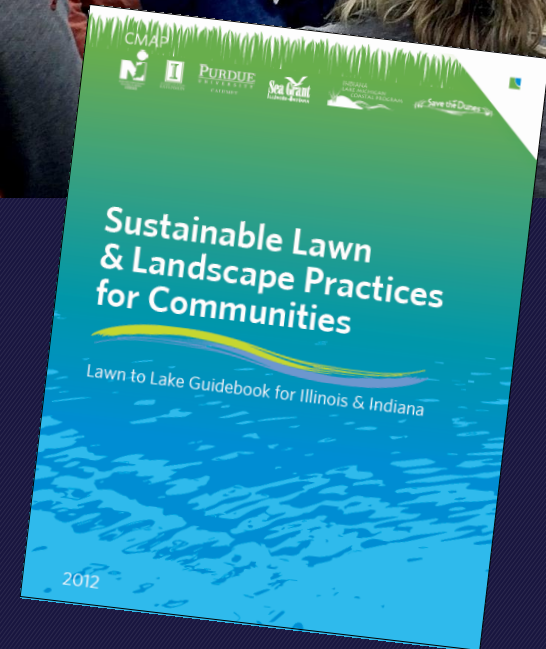
**L**eave grass clippings

**A**erate soil

**W**ater wisely, when needed

**N**atural nutrients, when needed

**S**oil care is the foundation

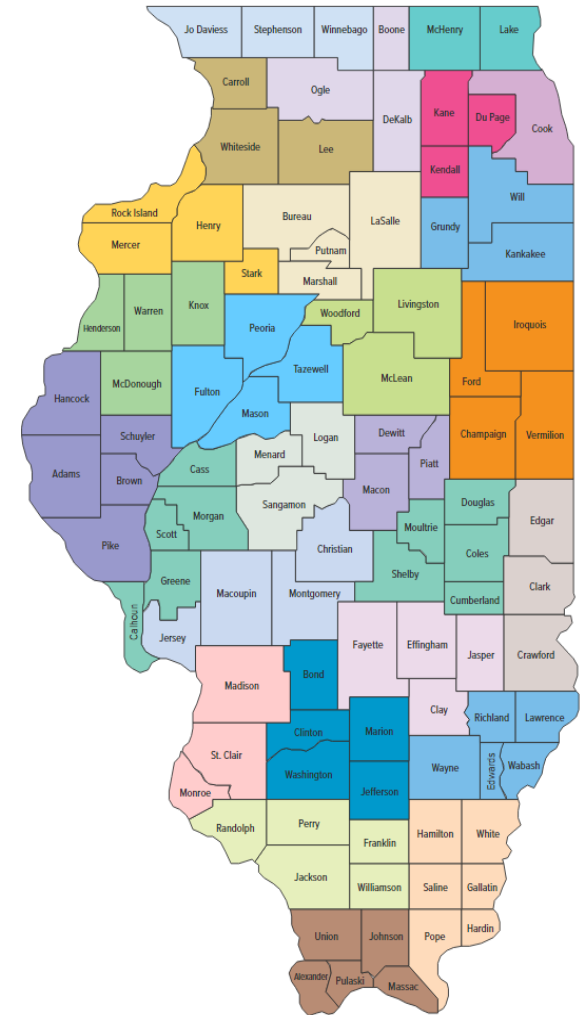


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# In the works...

## Targeting Natural Lawn Care Communications to Homeowners in Illinois

Interdisciplinary Collaborations in Extension Grant





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# Natural Nutrients

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Source: Adapted from Purdue University Extension Service: Organic Vegetable Production

# Preventing common weeds

- **Crabgrass.** To eliminate crabgrass, mow your lawn to at least three inches high and deliver one inch of water to your lawn each week (including rainfall).
- **Dandelions and Plantains.** To prevent dandelions and plantains from appearing, aerate your soil and add nutrients by top dressing with compost to improve soil health.
- **Creeping Charlie.** The presence of creeping Charlie indicates excessive moisture and compaction. Place dirt in low areas in the lawn to eliminate poorly draining spots. Reseed and top dress to outcompete this weed.

