

# Maggie Reiter

## Sunday

### Afternoon Speaker

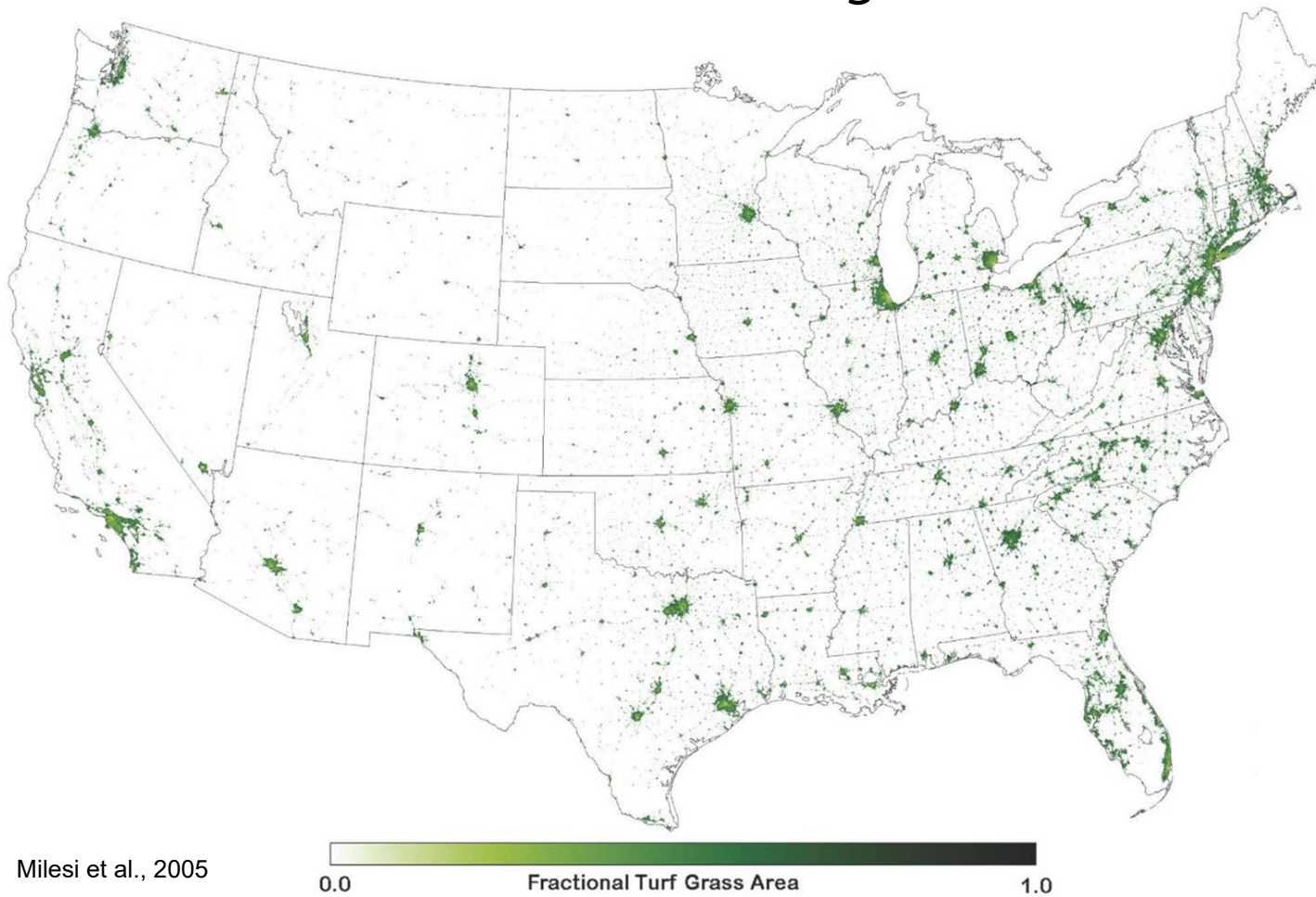
*Reducing Fertilizer Use with Approachable,  
Data-driven Lawncare Programs*



# Reducing fertilizer use with approachable, data-driven lawncare programs

Maggie Reiter  
Senior Scientist  
Sunday

# Over 40 million acres of turfgrass in the US



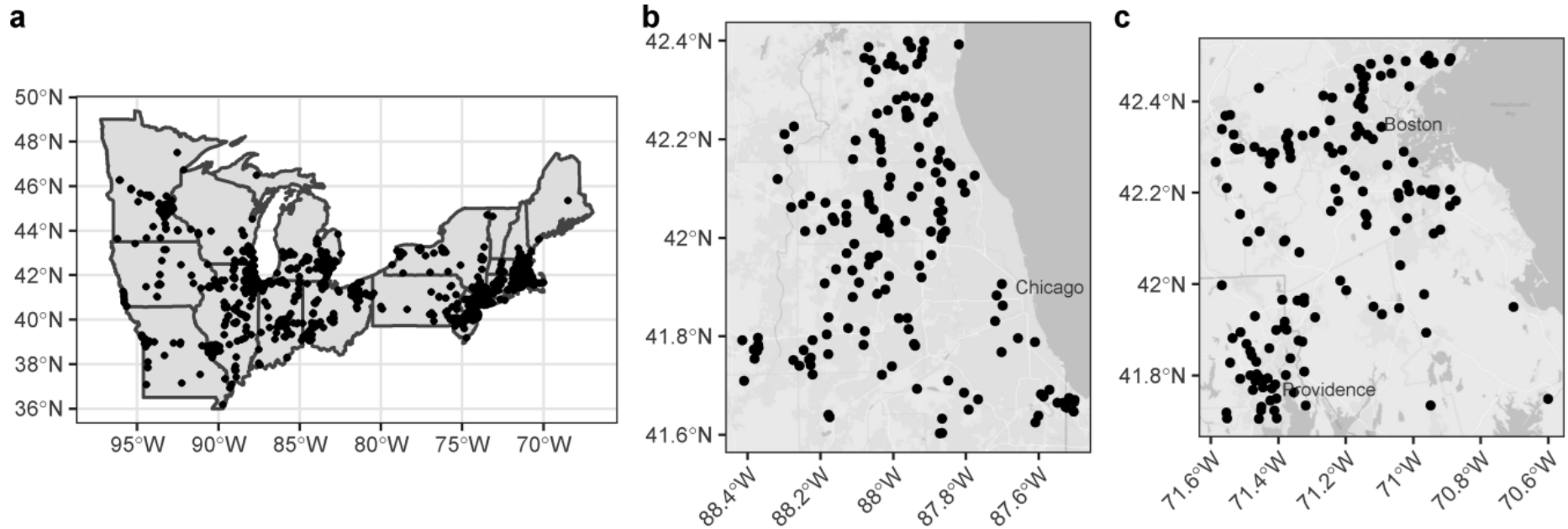






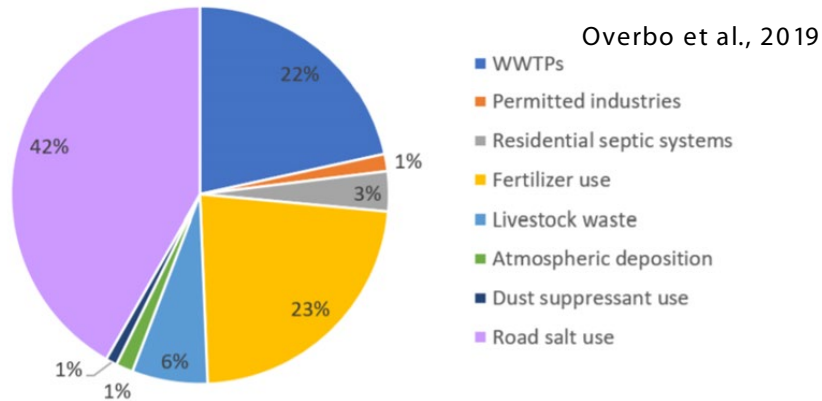


# Lakes at risk of chloride contamination



**Figure 6.** (a) Location of lakes predicted to have chloride concentrations above  $50 \text{ mg L}^{-1}$ . (b) Chicagoland, and (c) Boston, MA and Providence, RI are highlighted to show the density of at-risk lakes in regions of high development.

# How much potassium chloride (KCl) in turfgrass fertilizer we are using?



**Figure 13. Fraction of annual chloride contributions from major point and nonpoint sources for State of Minnesota.**

Fertilizer use data not readily available and up to date

Annual reporting is not precise enough to separate lawns, golf courses, gardens, greenhouses

Minnesota Statewide Chloride Management Plan developed with agricultural fertilizer data only

# There are forms of K beyond KCl

## Example with common products

Scotts uses potassium sulfate in most granular fertilizer products



Sunday predominantly uses potassium acetate





# Understanding of K and turfgrass health

Regulates plant water and enzymatic reactions,  
increases heat and drought tolerance

Excessive amounts can increase disease  
pressure

Very little research on turfgrass K

K likely overapplied —we can maintain  
turfgrass quality with less K



Doug Soldat, University of Wisconsin

# Opportunity to use less K (and potentially less Cl)

## 1. Use less fertilizer overall

Grass species	Fertilizer applications per year
Fine fescues	0.5 to 1.0
Tall fescue	1.6
Kentucky bluegrass	1.8
Perennial ryegrass	2.7



Andrew Hollman, University of Minnesota

# Opportunity to use less K (and potentially less Cl)

## 2. Use the latest turfgrass soil test recommendations

Current University of Minnesota recommendations

2008

Table 16. Annual potassium recommendations for established lawn and turfgrass

Potassium (K) Soil test level	Maintenance practices			
	Regular irrigation		No irrigation	
	Clippings Removed	Clippings Not removed	Clippings Removed	Clippings Not removed
----- ppm -----	Amount of potash (K <sub>2</sub> O) to apply <sup>1,2,3</sup> ----- lb. K <sub>2</sub> O/1000 sq. ft. -----			
0-50	4	3	3	2.0
51-100	3	2	2	1.0
101-150	2	1	1	0.5
over 150	0	0	0	0.0

<sup>1</sup>Multiply by 44 to convert the rate from lb./1000 sq ft to lb./acre.

<sup>2</sup>Apply no more than 1 lb. K<sub>2</sub>O/1000 sq. ft. in a single application.

<sup>3</sup>On sandy soils the recommended rate should be divided into split applications made on a regular basis.

Revised recommendations

2016

### Minimum Levels for Sustainable Nutrition Soil Guidelines

The Minimum Level for Sustainable Nutrition (MLSN) Guideline is a new, more sustainable approach to managing soil nutrient levels that can help you to decrease fertilizer inputs and costs, while still maintaining desired turf quality and playability levels. The MLSN guidelines were developed in a joint project between PACE Turf and the Asian Turfgrass Center. All soil analyses were conducted at Brookside Laboratories, New Bremen, OH.

MLSN Soil Guideline	
Potassium (K ppm)	30 ppm

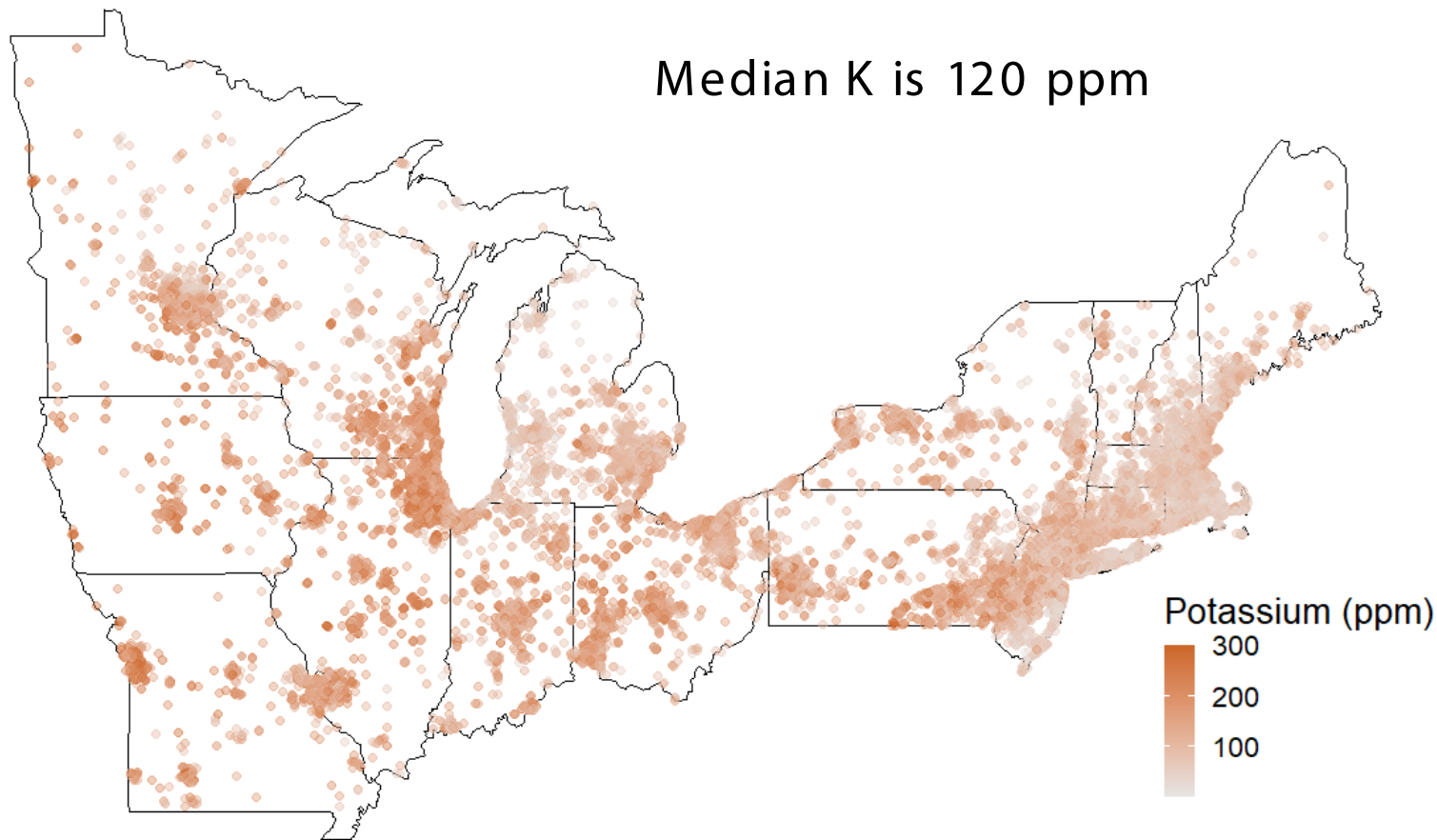


Soil testing is an essential piece of lawn care program customization and science-led approach



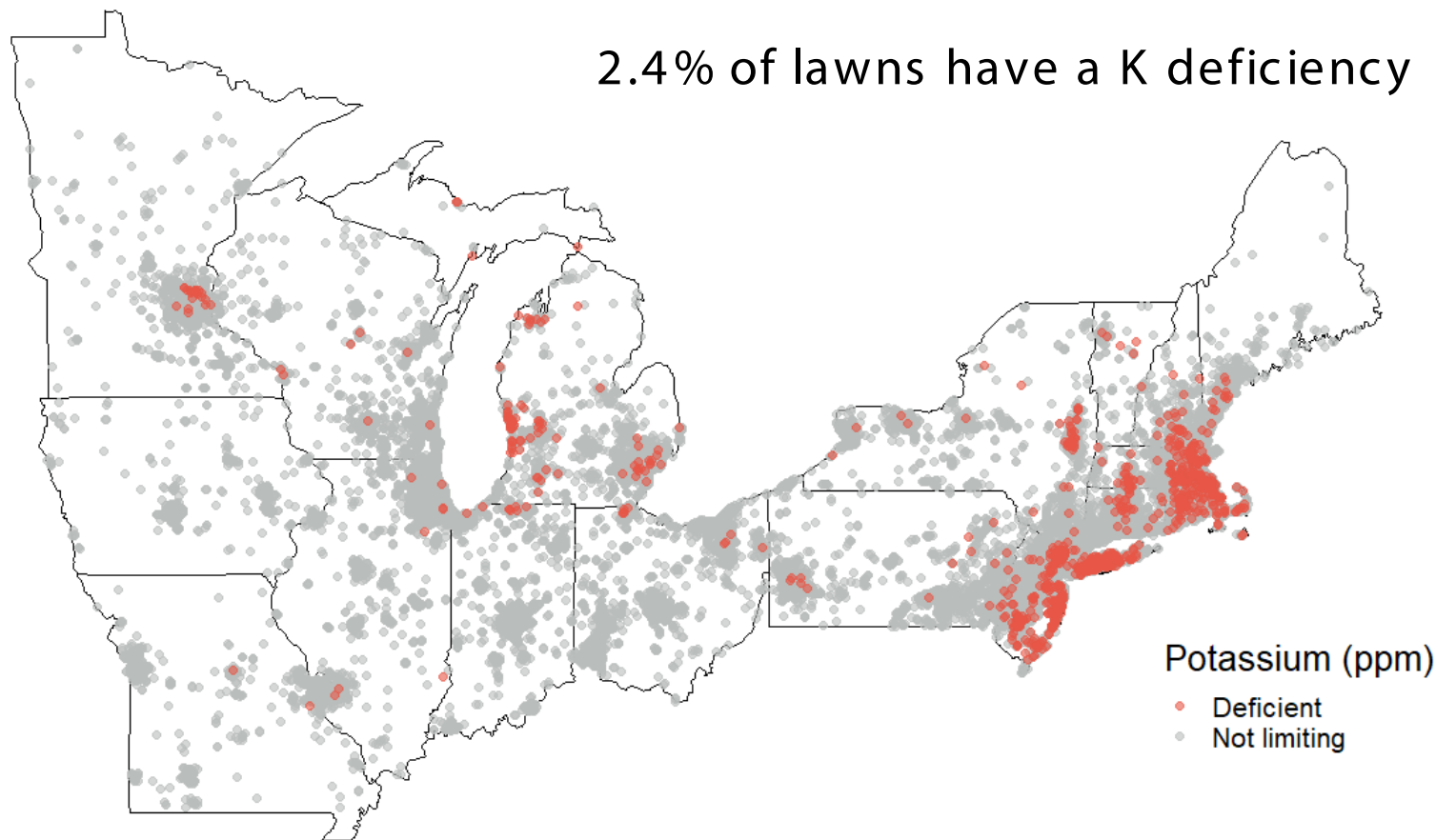
# Soil test data from 40,000 lawns

Median K is 120 ppm



# Soil test data from 40,000 lawns

2.4% of lawns have a K deficiency





# Example of a custom lawn plan

## Michigan lawn with low K based on soil test

APPLICATION DATE	POUCH NAME
May 2, 2022	Mighty Green
Jun 29, 2022	Lawn Strong
Aug 26, 2022	Potassium Boost
Oct 23, 2022	Fall Fortify



0-0-20

K derived from potassium acetate

# PRODUCT IMPACT

Our precision approach uses MLSN (Minimal Levels of Sustainable Nutrition) to interpret soil health. Instead of traditional, excessive fertilizer applications, our Smart Lawn Plans use light, frequent nutrient dosing to grow stronger, more resilient lawns with less. That's less product, less runoff, and, ultimately, less environmental pollution.

**Compared to conventional lawn plans, Sunday customers in 2021:**



Applied  
**1.34M fewer lbs.**  
of fertilizer



Used  
**58,844 fewer lbs.**  
of pesticides



Treated  
**97.6% less land**  
by opting for spot treatments  
over blanket herbicides

# Barriers to implementing lawn fertilizer programs with less Cl

Requires a soil test to confirm K levels, ideally every 2-3 years

Soil testing labs need to revise interpretations for turfgrass

Lack of retail availability of fertilizers without K, but many options without Cl

Consumers lack knowledge about implications of overusing Cl

**What are the impacts on Cl pollution reduction in urban waterways?**



# Summary

Chloride contribution from turfgrass fertilizers is unknown, and we can't assume all K contributions are KCl

Despite this, we can

1. Implement lower-input turfgrass programs to reduce fertilizer overall
2. Revise turfgrass fertilizer interpretations to recommend less K
3. Choose K forms other than KCl

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