



# How applying less fertilizer has improved my course.

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# The MLSN guidelines made more sense to me

## 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
pH	>5.5
Potassium (K ppm)	37
Phosphorus (P ppm)	21
Calcium (Ca ppm)	331
Magnesium (Mg ppm)	47
Sulfur as sulfate (S ppm)	7

Nitrogen requirements are best determined based on **turf growth potential**, which incorporates site-specific weather and turf type to calculate nitrogen demand (Gelernter and Stowell, 2005. Golf Course Management, p. 108-113, March, 2005).

### How the guidelines were developed

From a database of over 17,000 soil samples, we selected 3,721 that were classified as having:

- not poor performing turfgrass
- pH 5.5 - 8.5: to avoid aluminum toxicity at pH less than 5.5, and to avoid alkalinity hazard at pH greater than 8.5
- total exchange capacity <6 cmol/kg

A log-logistic model provided a significant fit of the data, and was used to identify the concentration (in ppm) of each nutrient that 10% of the soil samples fell below, but were still performing well. This 10th percentile value is the MLSN soil guideline shown above.

For more information, see the Facebook MLSN page at: [www.facebook.com/mlsnturf](https://www.facebook.com/mlsnturf)

# MLSN had a big impact on amount of fertilizer I applied

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# MLSN had a big impact on my fertilizer costs.



# Less fert, better grass?





# **Lower expectations allow me to see impacts of doing nothing or less**





# Less calcium, lower pH, no clover

SUMMARY	
Sample Number	Soil pH
GREENS	5.3
TEES	5.1
FAIRWAYS	5.0
Average	5.1





# Taking inspiration from the Park Grass Experiment





# Better grass on tees, no corrective action needed

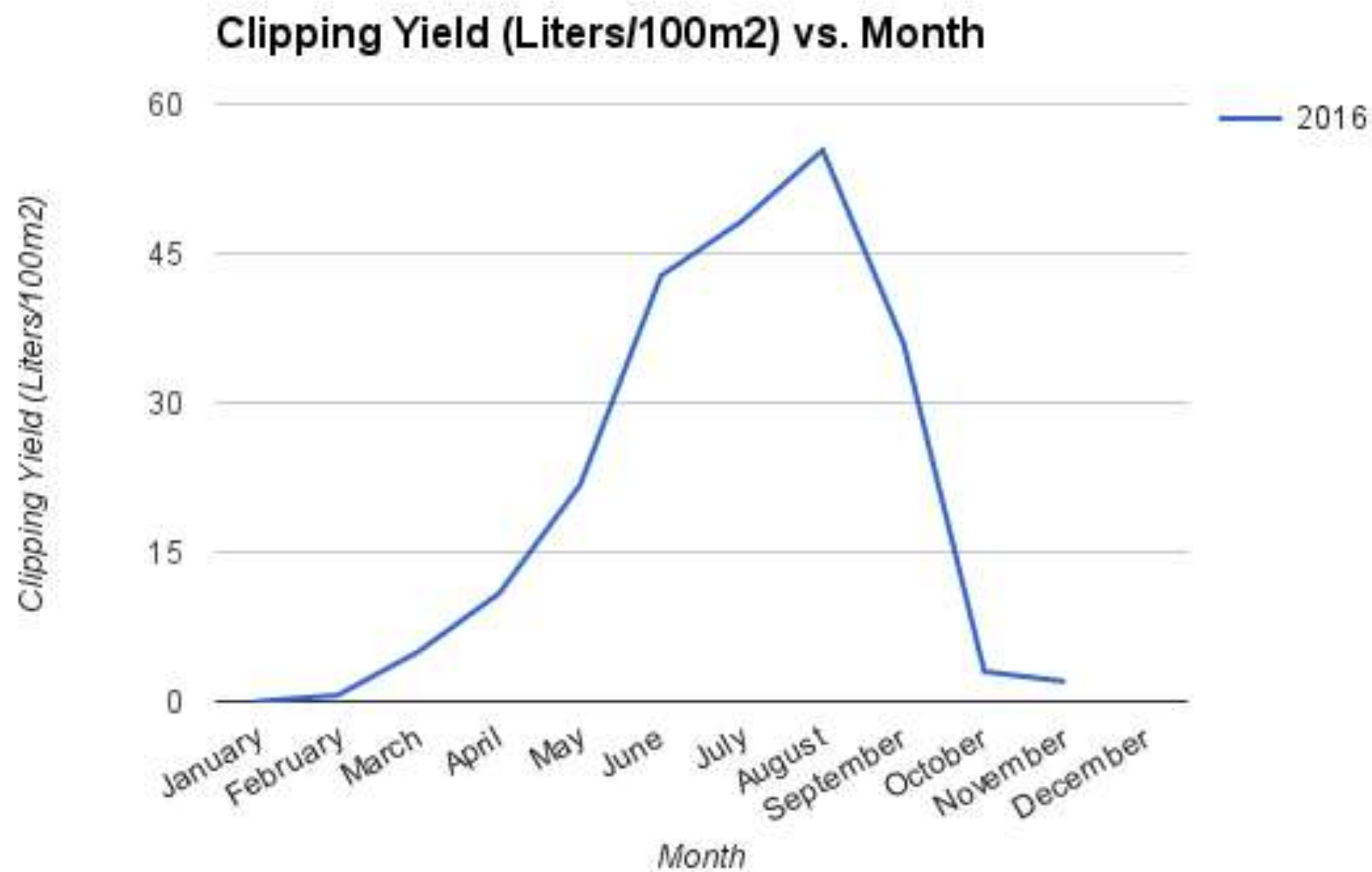




# Growth Potential explained what I was seeing

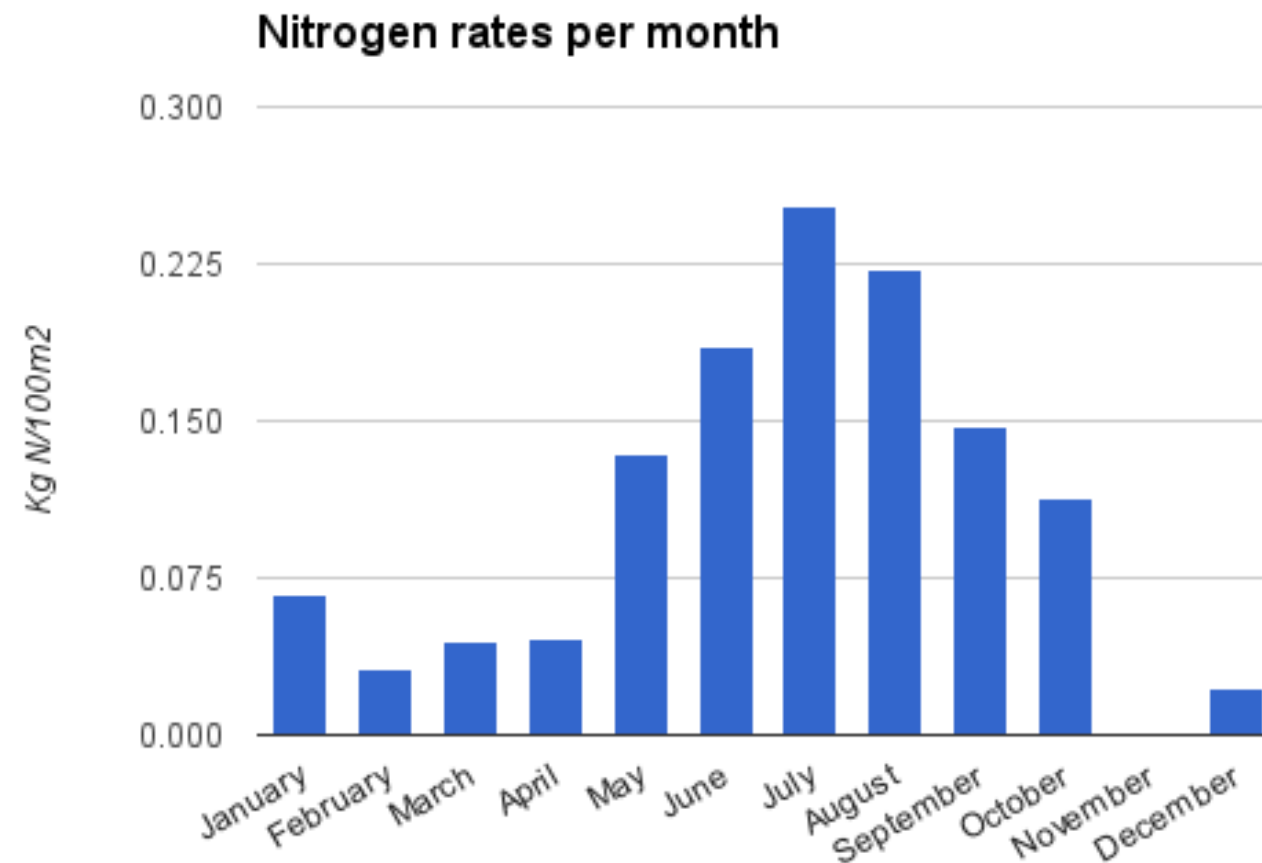


# How my grass actually grows based on clipping yield



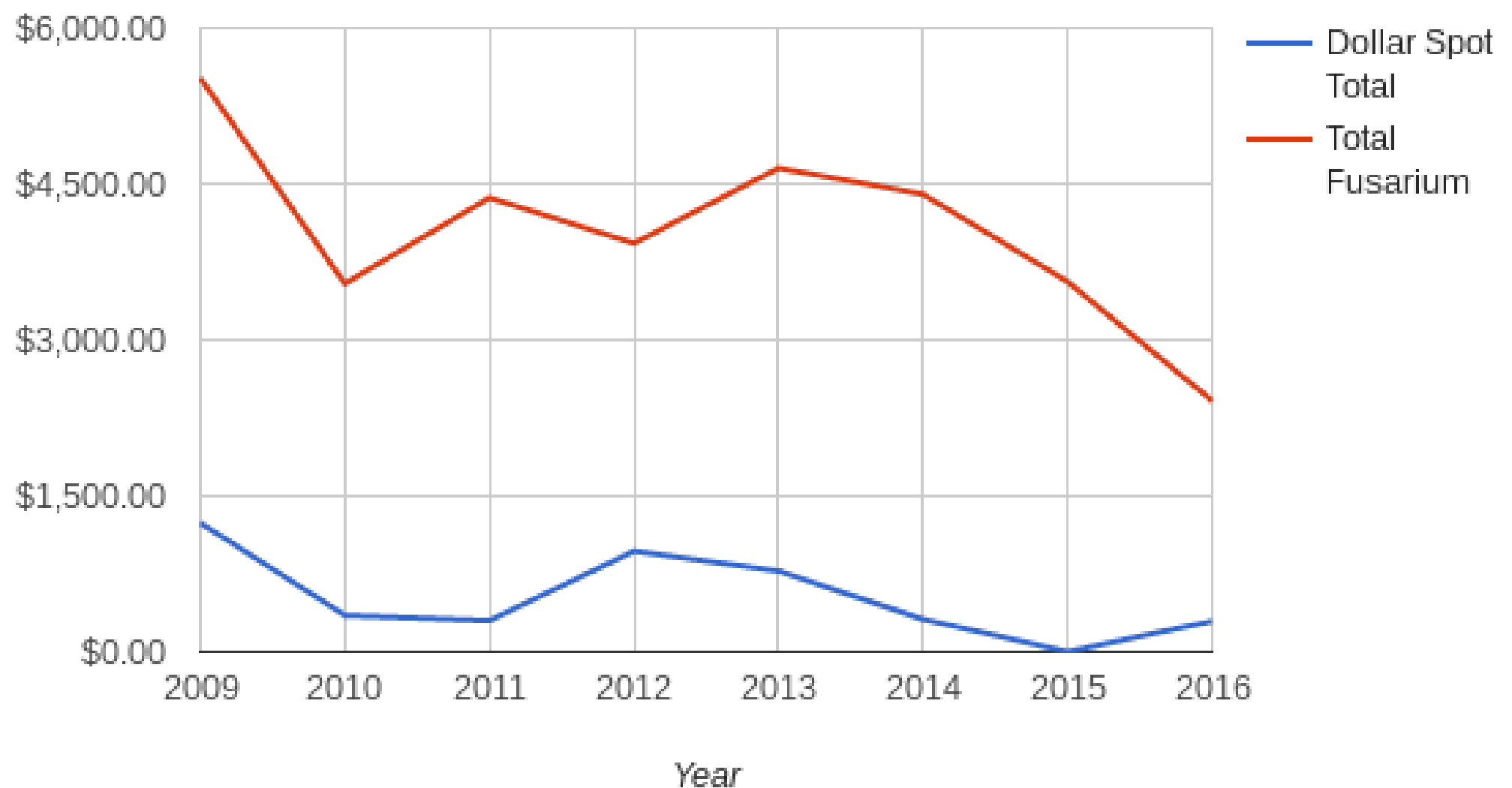


# Proper timing of nitrogen can have a big impact on disease like dollar spot and fusarium patch



# Growth potential helped lessen impacts of my most destructive and costly pests

Putting Green Pesticide cost by pest





# Dollar Spot can be a problem





# Who needs potassium anyway?



**Doug Soldat** @djsoldat · 2 Jun 2015

After 4 yrs, starting to see signs of K deficiency! No K on left, plenty of K on right (with residual snow mold)



4 11 16 ...



# No K, no snowmold....or poa









# Timing fert applications to have impact on disease like anthracnose





# Less corrective measures required

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# Nutrient deficiencies can be scary but are easy to fix





# What do you think?

