

A Look At ...



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A LOOK AT ... FROM AN INDEPENDENT PERSPECTIVE from
National Organization Responding Against HUJE that seek to harm the Green Space Industry (NORAHG)

Golf Course Maintenance

A Look At Managing Turfgrasses

How Much Nitrogen Do Golf Grasses Need ?

October 2012

Doug Brede, Ph.D. and
Christian Baldwin, Ph.D.

Jacklin Seed Research News Flash

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Selected and Adapted Excerpts

Golf Course Maintenance

How Much Nitrogen Do Golf Grasses Need ?

How do you determine the correct amount of nitrogen ?

How much nitrogen do golf grasses need ?

The quick answer to the question above is —

As little as possible to get the job done.

Nitrogen is a key element in putting green management.

You have to apply it for appearances sake, to keep the green looking green and attractive.

Nitrogen is also essential for repairing wear and tear that comes with normal golf traffic.

But apply too much nitrogen and bad things start happening.

Top-growth accelerates, causing mower scalping and slow ball roll.

Thatch can accumulate, leading to a soft, spongy surface that harbors moisture and insects.

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How Much Nitrogen Do Golf Grasses Need ?

**T-1 required the least
nitrogen to maintain an
acceptable appearance**

So if less nitrogen less is better, how do you determine the correct amount ?

A comprehensive article on putting green nitrogen use was published by Doug Brede, Ph.D. and Christian Baldwin, Ph.D. in the September/October 2012 edition of the refereed scientific periodical, Agronomy Journal.

The study examined the performance of 18 popular bentgrass cultivars and how each responded to 3 levels of nitrogen.

The investigation was unique in that it looked at several putting green attributes, not just one single trait.

The attributes included — chlorophyll content, visual color, putting green speed, top-growth, lateral regrowth, and thatch accumulation.

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How Much Nitrogen Do Golf Grasses Need ?

**T-1 and Alpha had slightly less
thatch than other varieties**

In the net analysis, JACKLIN SEED'S T-1 SCORED IN THE TOP STATISTICAL GROUPING COMBINED ACROSS ALL TRAITS.

The experiment applied liquid nitrogen fertilizer every other week from spring until fall at rates of 1, 3, or 6 pounds per 1000 square feet per year.

Next, a computer program was used to calculate a line through those three nitrogen rates to estimate the minimum nitrogen dosage required to achieve a color of « 7 » or above.

« 7 » was considered ACCEPTABLE COLOR FOR A PUTTING SURFACE on a 1 to 9 scale.

As expected, higher nitrogen rates resulted in more chlorophyll, more clippings, faster lateral re-growth, and a shorter ball-roll distance.

THATCH ACCUMULATION WAS NOT STATISTICALLY INFLUENCED BY NITROGEN, although there were some trends in the data.

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How Much Nitrogen Do Golf Grasses Need ?

Newer cultivars with increased shoot density were no more prone to thatch accumulation than older, more open-canopy cultivars

The short, two-year life-span of the experiment was probably the reason for few thatch differences.

The variety plots themselves had been in place for two years prior, to provide a solid turf surface before fertilizer treatments commenced.

The graph below shows T-1 and Alpha having slightly less thatch than other varieties despite their higher density.

Earlier researchers had worried that today's higher density varieties might have problems with thatch.

However, the study concluded that —

« newer cultivars with increased shoot density were no more prone to thatch accumulation than older, more open-canopy cultivars ».

A 2010 study at Purdue by Cale Bigelow arrived at a similar conclusion.

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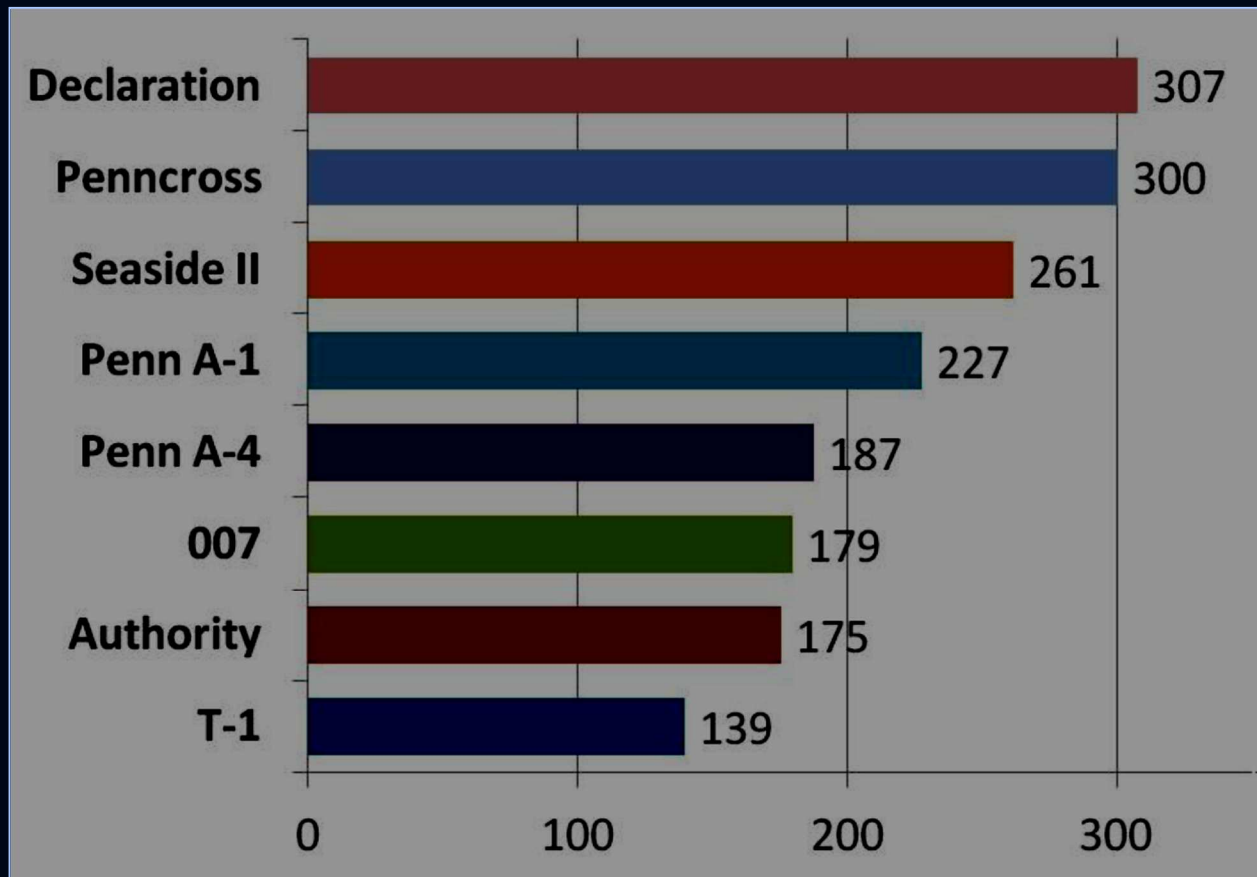
How Much Nitrogen Do Golf Grasses Need ?

Bentgrass cultivar	Pounds of nitrogen per 1000 square feet per year	Pounds of nitrogen per acre per year
Declaration	7.1	307
Penncross	6.9	300
Seaside II	6.0	261
Penn A-1	5.2	227
Penn A-4	4.3	187
007	4.1	179
Authority	4.0	175
T-1	3.2	139

The table showing results for color. Nitrogen requirements of creeping bentgrass cultivars mowed at putting green height in Post Falls, Idaho, in September 2009 and 2010. Numbers indicate pounds of nitrogen per year required to maintain an acceptable turf color rating of « 7 » or above. T-1 required the least nitrogen to maintain an acceptable appearance.

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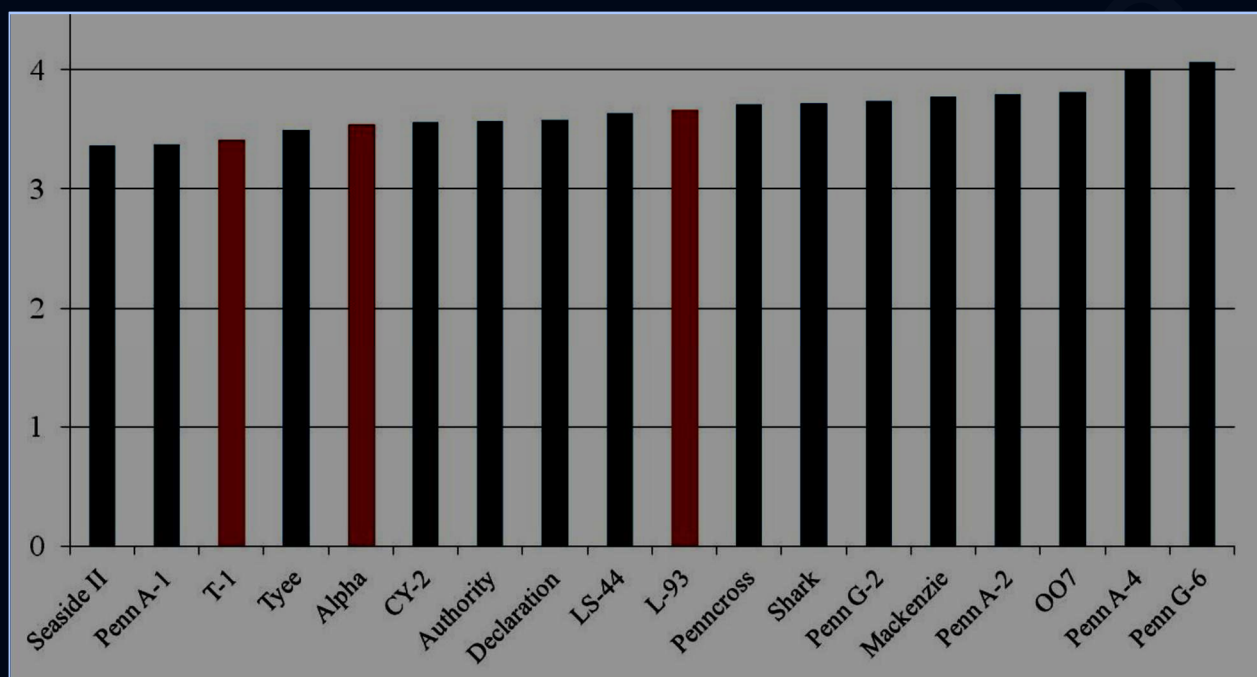
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How Much Nitrogen Do Golf Grasses Need ?



Four years of thatch buildup on 18 cultivars, averaged across 3 nitrogen rates.

T-1 and Alpha had slightly less thatch than other varieties.

Thatch (left side of chart) is expressed in terms of kilograms of organic matter per square metre (1 kilogram per square metre equals roughly 2 pounds per 10 square feet).

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Christian Baldwin, Ph.D., and technician Jami Mayer apply fertilizer treatments to bentgrass cultivars to determine their nitrogen requirement.

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