Reference tables and species-specific adjustments

Micah Woods

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Contents

Table 1: Nutrient concentrations for creeping bentgrass

	Concentration (%)		
Element	10th percentile	Median	90th percentile
N	3.4	4.6	5.9
P	0.36	0.52	0.68
K	1.4	1.9	2.5
Ca	0.41	0.58	0.75
Mg	0.17	0.23	0.28
S	0.41	0.56	0.72

1 Introduction

The information here are the values I use today for estimating nutrient harvest by species, for making adjustments to what I expect to be normal for various species, and so on. For more information, see www.asianturfgrass.com and www.paceturf.org.

2 Expected dry weight for a given clipping volume

For clippings cut from golf course putting greens—that is, the tags are small in size and settle accordingly—I expect 1 liter of fresh clippings, when dried, to have a mass of 63 grams. That is the value I use for all species except for *Zoysia matrella* for which I expect 1 liter to be 110 grams.

This works out to be 1 gallon of fresh clippings expecting to have a mass of 0.53 pounds when dry, or for *Zoysia matrella*, 1 gallon would be 0.92 pounds.

3 Normal leaf nutrient content by species

See Tables 1 to 5 for specific species. For *Poa annua*, I expect normal values slightly higher than the values in Table 1.

4 Normal monthly N by species

I use different *standard* nitrogen amounts when estimating how much N a particular species may be supplied with, and I link this to the PACE Turf growth potential (GP). That is, I multiply the monthly or daily GP by this

Table 2: Nutrient concentrations for bermudagrass

	Concentration (%)		
Element	10^{th} percentile	Median	90^{th} percentile
N	2.7	3.9	5.2
P	0.23	0.40	0.57
K	0.85	1.4	1.9
Ca	0.14	0.32	0.49
Mg	0.11	0.17	0.23
S	0.24	0.40	0.54

Table 3: Nutrient concentrations for fine fescue

	Concentration (%)		
Element	10^{th} percentile	Median	90^{th} percentile
N	1.4	3.0	4.6
P	0.19	0.40	0.61
K	1.2	1.9	2.6
Ca	0.22	0.45	0.67
Mg	0.09	0.16	0.23
S	0.17	0.38	0.59

Table 4: Nutrient concentrations for seashore paspalum

	Concentration (%)		
Element	10^{th} percentile	Median	90^{th} percentile
N	1.9	3.3	4.6
P	0.15	0.35	0.52
K	1.5	2.1	2.7
Ca	0.07	0.27	0.45
Mg	0.12	0.18	0.24
S	0.53	0.71	0.88

Table 5: Nutrient concentrations for *Zoysia matrella*

	Concentration (%)		
Element	10th percentile	Median	90th percentile
N	0.98	2.3	3.5
P	0.11	0.27	0.44
K	0.49	1.0	1.6
Ca	0.06	0.24	0.41
Mg	0.05	0.11	0.17
S	0.14	0.29	0.44

maximum N value[1] to get the expected N for the temperatures conditions. In this way, if the temperature is so cold that grass can't grow, this will show as a GP of 0, and the expected N will also be 0.

2 g/m² (0.4 lbs) creeping bentgrass, *Zoysia matrella*, fine fescue

2.5 g/m² (0.5 lbs) bent-Poa

3 g/m² (0.6 lbs) seashore paspalum, *Poa annua*, perennial ryegrass, kentucky bluegrass

4 g/m² (0.8 lbs) bermudagrass

5 Normal OM246 values by species

These values are provided in Table 6. For more about OM246 testing, see www.asianturfgrass.com/project/om246/.

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[1] If monthly, I use the maximum N value shown here, and if calculating daily, I multiply by the monthly N divided by $\frac{365}{12}$.

Table 6: These are the data summarized by species based on the measurements from putting greens in the ATC database as of 2026-02-02. The minimum (Min) and maximum (Max) values for each species are measured values. The Q_1, Q_2, and Q_3 values are generated 25th, 50th (median), and 75th quartiles from a Bayesian model of the data that incorporates partial pooling of information across species.

		Total organic material by mass (%)				
Species	Depth (cm)	Min	Q_1	Q_2	Q_3	Max
OM2						
bent-Poa	0–2	3.4	5.6	7.1	9.0	16.7
bentgrass	0–2	1.6	4.6	6.0	7.8	18.4
bermudagrass	0–2	0.6	5.6	7.5	10.0	20.8
fescue	0–2	4.1	4.1	5.3	6.8	8.7
Poa annua	0–2	3.8	5.8	7.6	10.0	16.1
seashore paspalum	0–2	1.5	5.2	6.8	9.0	20.5
zoysia	0–2	5.0	7.8	10.1	13.2	21.9
all	0–2	0.6	5.3	7.1	9.5	21.9
OM4						
bent-Poa	2–4	0.9	2.5	3.4	4.6	8.6
bentgrass	2–4	0.6	1.8	2.5	3.5	6.3
bermudagrass	2–4	0.4	2.2	3.1	4.5	8.8
fescue	2–4	0.8	2.1	3.0	4.3	4.4
Poa annua	2–4	2.7	2.7	3.6	4.9	7.0
seashore paspalum	2–4	0.7	2.3	3.3	4.6	12.7
zoysia	2–4	1.2	3.4	4.7	6.5	8.8
all	2–4	0.4	2.3	3.3	4.6	12.7
OM6						
bent-Poa	4–6	0.6	1.7	2.4	3.4	5.5
bentgrass	4–6	0.3	1.1	1.6	2.4	3.8
bermudagrass	4–6	0.2	1.3	1.9	2.9	6.5
fescue	4–6	0.5	1.4	2.0	3.0	2.6
Poa annua	4–6	1.7	1.8	2.5	3.5	5.7
seashore paspalum	4–6	0.4	1.3	2.0	2.9	3.9
zoysia	4–6	0.7	2.0	2.9	4.2	5.5
all	4–6	0.2	1.5	2.2	3.1	6.5