Soil Nitrogen (N)

Nitrogen is the major growth regulating nutrient used in turfgrass management. Optimum levels are difficult to determine and vary by turfgrass type and turfgrass use. Higher nitrogen rates are applied in high traffic areas and lower nitrogen levels are used for low maintenance sites. Excessive levels can result in environmental contamination.

The role of nitrogen in IPM

The role of nitrogen in IPM varies depending upon the disease that is targeted. Higher levels of nitrogen can aid in suppression of anthracnose caused by *Colletotrichum cereale* on *Poa annua* and dollar spot caused by *Sclerotinia homeocarpa* on bentgrass. Alternatively, high nitrogen levels results in increased susceptibility of ryegrass to brown patch caused by *Rhizoctonia solani*. The guidelines below provide a starting point to begin fine tuning management to suppress the diseases that cause the greatest impact at the site.

Guidelines:

Total plant available nitrogen is the sum of nitrate (NO_3) and ammonium (NH_4) forms of nitrogen.

	Low	Normal	Excessive
Nitrate (NO_3) KCl extracted	< 3 mg/kg	3 - 20 mg/kg	> 20 mg/kg
Ammonium (NH_4) KCl extracted	Unknown	0 – 7 mg/kg	> 10 mg/kg
Total (NO_3 + NH_4)	< 3mg/kg	3 – 20 mg/l	> 20 mg/kg

Management

There are a multitude of nitrogen products available for use in managing soil nitrogen levels. Here are a few quick and slow release options:

Quick release

- 15-0-0 Calcium nitrate
- 13-0-44 Potassium nitrate
- 46-0-0 Urea
- 21-0-0 Ammonium sulfate

Slow release

IBDU Isobutylenediurea
Ureaformaldehyde
Sulfur coated urea
Polymer coated urea