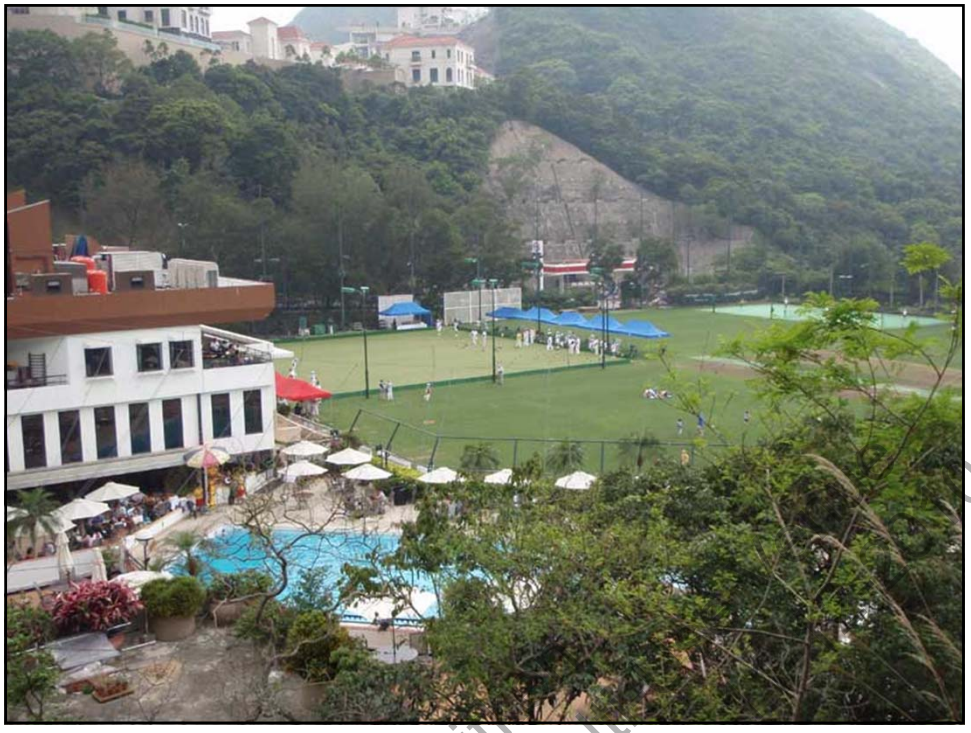
Managing Turf at a Multi-Use Venue

Overview

1. Understanding your situation, understanding challenges
2. Description of important aspects of maintenance practices
3. Tools to deal with wear of your facility
4. General management and summary



Key To Managing Multi-use facilities

1. Research your climate
2. Knowing your grasses
3. Be familiar with your soils
4. Be clear with your goals

→ **Spend time gaining education**

Key To Managing Multi-use facilities

1. Understand growth cycles & schedules
2. Rotation of turf
3. Keep turf dry leading up to high usage periods
4. Fertilize turf prior to event 3 – 4 days prior so turf in growth phase soon after
5. Communication & Planning

→ **Spend time understanding your situation where your issues come from**

Choosing a Suitable Grass

1. Assess usage requirements
2. Assess budget & maintenance budget availability
3. Assess maintenance constraints
4. Assess objectives
5. Conduct trials
6. Site visits

→ Investigate

Overseeding

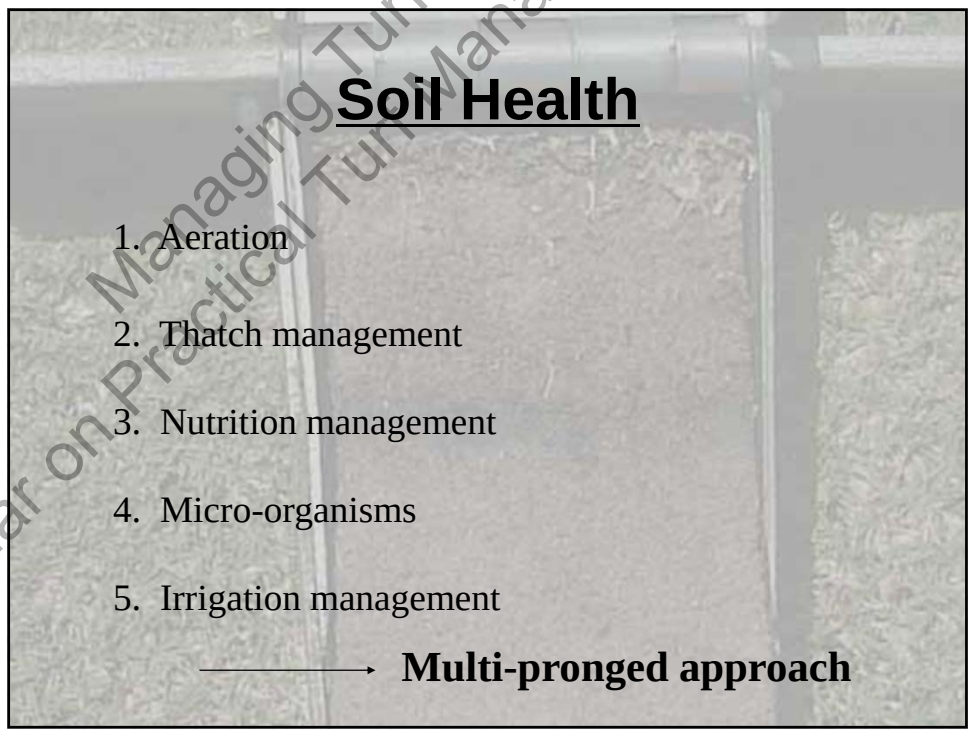
1. Protect warm season grasses
2. Improve appearance over winter period
3. Maintain integrity of surface
4. Improves player safety

→ Overall better prepared facility over the winter months

Maintenance Separation

1. Growing/improving your turf

2. Maintaining & protecting your turf



Soil Health

1. Aeration
2. Thatch management
3. Nutrition management
4. Micro-organisms
5. Irrigation management

→ **Multi-pronged approach**

Aeration

1. Increases soil oxygen levels
2. Reduces compaction/ keeps profile open
3. Avenue for roots & water to infiltrate
4. Opportunity for fertilizer to work into profile
5. Remove at least 10% of surface each year
6. Alternate depths

→ **Rotation is the key**

Thatch Management

1. Turf accumulates thatch because it builds up faster than it can be decomposed by either decomposition or mechanical means
2. Accumulated by high inputs (water & fertilizer)
3. Slow green speed/ Reduced water infiltration
4. Good environment for disease & insect infestation
5. Shallow rooting

⟶ **Thatch accumulation predominantly caused by our management**

Reducing Thatch

1. Restrict N inputs/ maintained balanced soils
2. Limit excessive irrigation
3. Mechanical de-thatching
4. Hollow tine aeration
5. Increase microbial activity
   ⟶ Good soil fungi, bacteria, worms & mites
6. Frequent sand topdressing ⟶ dilutes thatch

⟶ **Combine inputs to control thatch**

Nutrition Management

1. Nutrition program
2. Lean & mean ⟶ fertilize for health, not color
3. Little & often
4. 1 to 1 ration of Nitrogen to Potassium
5. Adequate soil testing

⟶ **Balance inputs**

Nitrogen Applications

1. Most important nutrient

2. Predominately for controlling growth

3. Balanced nitrogen applications, excess N will

   - Soften the plant
   - Make plant susceptible to disease
   - Slow playing surface
   - Concentrated top growth
   - Excessive thatch
   - 0.25kg of actual N per100m^2 per month

→ Use Nitrogen wisely

Potassium Applications

1. Hardens the plant
2. Protection against extreme weather variations
3. Mobilizes other nutrients/ Maintains water uptake
4. Resistance against disease & insect attack
5. Leaf & stem reproduction

→ Rotate forms of potassium, include silicate forms

Other Nutrients & Amendments

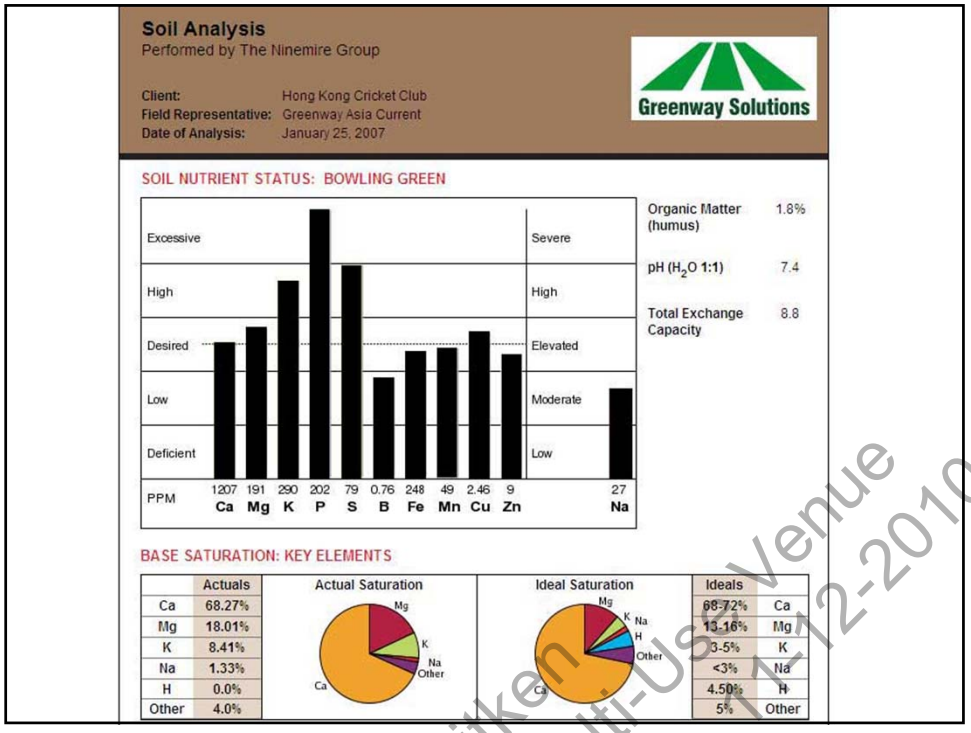
1. Phosphorus as required
2. Regular amounts of Mg, Mn, Fe
3. Balanced calcium/magnesium ratios
4. Maintain high CEC – preferably above 5
5. Healthy humus levels/ hormone products
6. Balanced pH at around 6.5

→ Put a nutrition program in place

Wetting Agents

1. Uniform movement/availability of water through soil profile
2. Restricts water repellency, therefore avoids dry patch
3. Stretches days between waterings/reduces water use
4. Increases resilience of turf
5. Keeps the greens performance even & consistent
6. Apply monthly during warmer months

→ **Don't under estimate the value of wetting agents**



Soil Analysis
Performed by The Ninemire Group

Client: Hong Kong Cricket Club
Field Representative: Greenway Asia Current
Date of Analysis: January 25, 2007

Greenway Solutions

SOIL NUTRIENT STATUS: BOWLING GREEN

Organic Matter (humus)	1.8%
pH (H_2O 1:1)	7.4
Total Exchange Capacity	8.8

BASE SATURATION: KEY ELEMENTS

	Actuals
Ca	68.27%
Mg	18.01%
K	8.41%
Na	1.33%
H	0.0%
Other	4.0%

Ideals	
68-72%	Ca
13-16%	Mg
3-5%	K
<3%	Na
4.50%	H
5%	Other

Irrigation Management

1. Irrigation more art than science
2. Deep & infrequent
3. Minimize light frequent hand watering
4. Look at water quality, have it analyzed

→ **Arguably the most important aspect to managing good turf**

Managing & Developing The Root System

"Any turf sward that has a deep and vigorous root system will have very little problems"

Managing & Developing The Root System

General Principals

1. Good root systems are about managing thatch and irrigation
2. Water finding roots are rewarded with Auxin
3. Roots prefer to live in the thatch for this reason ⟶ thatch retains 33% moisture
4. Myth ⟶ higher the cut ⟶ deeper the root system

⟶ **Understand the operations of the root system**

Encouraging A Deep Root System

1. Deep & infrequent watering
2. Mild moisture stress ⟶ Soil moisture levels will range between 10% - 25% in most soils
3. Thatch reduction / Aeration
4. Avoid stressing turf with mechanical means
5. Avoid excessive applications of Nitrogen ⟶ leads to carbohydrate exhaustion
6. Balanced soil nutrition ⟶ good phosphorus levels

⟶ **A good root system will eliminate most problems associated with the management of your facility**

Surface Preparation

Mowing

1. Cut when necessary
2. Cut diagonally & different direction each time
3. Cut in morning/always ensure mower is 100% sharp
4. Always follow 1/3 rule ⟶ avoid carbohydrate exhaustion
5. Limit 'clean up' or 'ring' cuts
6. Turn mowers on protection cloth

⟶ Remember cutting is inflicting damage on your turf each & every cut

Avoiding Problems With Wear

1. Increased cutting heights
2. Machinery rotation
3. Aeration
4. Ensure wear areas remain flat
5. Balanced nutrition inputs ⟶ Primo Maxx, Potassium Silica

⟶ **Rotation & close monitoring is vital in avoiding wear**

Primo Maxx

1. Regulates plant growth
2. Gibberelic acid inhibitor ⟶ same as normal mowing
3. Improves density & color
4. Redirects nutrients into root system
5. Reduces thatch accumulation/hardens plant
6. Increases tolerance to shade/protection against disease

Potassium Silica

1. Hardens the plant
2. Less tissue damage
3. Max effect when combined with primo maxx
4. Increased speed of turf
5. Improved color

→ Healthier plant in general

Recovering Stressed Turf

1. Raise cutting heights
2. Syringe watering
3. Additional aeration
4. Additional fertilizer applications – trace elements
5. Avoid cutting stressed areas
6. Seeding
7. Topdressing

→ Giving stressed turf what it requires is important in the recovery process

Dealing with low light Intensity

1. Increase turf density leading up
2. Ensure balanced soils
3. Little & often fertilizer
4. Good irrigation practices
5. Primo max
6. Increased cutting heights
7. Reduced usage (where possible)
8. Consider protection program against pests

→ **Preparation & planning ahead is the key**

Make Hay While The Sun Shines

1. Get your turf in good condition pre-season
2. Make use of good growing conditions
3. Make use of closed venues
4. Use access wisely
5. Make good applications & inputs

→ Use good growing conditions to your advantage

Summary

1. Have confidence in yourself
2. Stick with what works for you
3. Maintain wide vision
4. Spend time educating yourself
5. Maintain a keen eye for observations

Finally

1. Keep all inputs even
2. Put a maintenance program in place → don't always have to follow it
3. Make hay while the sun shines
4. Learn from your mistakes
5. Are you doing all you can? How can you improve?