

Environmental/Financial Impact of Different Grass Types

INTRODUCTION

The spiraling increase in costs for maintenance, in conjunction with the environmental compliance/acceptability of turf maintenance practices are real issues facing most if not all golf courses.

The two maintenance factors that have the greatest impact on these issues are:

- Grass type(s) which are grown.
- Presentation standards (maintenance regime) adopted by the golf club.

In this latest NZ Golf fact sheet, we consider both the environmental and financial impact of the different grass types commonly grown on NZ golf courses.

CONSIDERATIONS WHEN SELECTING GRASSES

When a golf club is selecting the grass type(s) that will be grown on a specific area (greens, fairways, etc) a number of issues need to be considered, namely:

- i. The grass types that presently dominate on the golf course or areas thereof.
- ii. Cost and benefits(where appropriate) for changing to a new grass type and on going maintenance requirements of the new grass
- iii. Playing quality provided by the grass type and member's acceptance of the new grass type
- iv. Member acceptance of any disruption associated with changing the grass type
- v. Adaptability of the grass type (climate, soil type etc)
- vi. Maintenance requirements and costs for a given grass type
- vii. Environmental impact of managing a particular grass type.

Having decided on the grass type(s) for the golf course, it is important that golf clubs learn from the past and that undesirable and unintended changes do not occur with time;

*For example: The unintended transition from browntop to *Poa annua* as has occurred on many golf courses in the past.*

To avoid this situation it is recommended that clubs prepare a Policy Document that clearly specifies the grass types that will be grown on the respective areas found on their golf course and then adopt a management plan that achieves the clubs goals or policy. In most instances, the best adapted grasses for the golf club's location can already be found on site.

COMPARISON OF GRASSES

The comparison of the different grasses presented below provides an indication of the *relative differences* between the grasses. **The specific values cited will depend on the club's locality and maintenance plan.**

GREENS, COLLARS AND APPROACHES

COMPARISON OF BROWNTOP AND <i>POA ANNUA</i> REQUIREMENTS		
Input	Browntop	<i>Poa annua</i>
<u>Fertiliser</u>		
Nitrogen (Kg/ha/yr)	< 175kg/ha/year	>200kg/ha/year
Potassium (Kg/ha/yr)	< 40kg/ha/year	> 200kg/ha/year
Phosphorous (Kg/ha/yr)	<12 kg/ha/year	> 25kg/ha/year
<u>Water</u>	approximately 50 – 60% daily Evapotranspiration rate 3750-5400m ³ /ha/year (approx)	Approximately 80 – 100% daily Evapotranspiration rate 6000 -7500m ³ /ha/year (approx)
<u>Sand (where appropriate)</u>	< 135m ³ /ha/year	>180m ³ /ha/yr
<u>Chemical applications</u> (approx number of applications/year)	5 – 10 applications/year	10 – 14+ applications/year
<u>Fuel</u>	Approximately 10 – 20 % savings over <i>Poa annua</i> .	
<u>Potential environmental impact</u>	Moderate	High

FAIRWAYS

For fairways the comparison between grass types provided below is based around maintaining a weed free, full turf cover throughout the year, irrigation and where clippings are returned.



Different water requirements of Couch (RHS) relative to mixed *Poa annua* rough.



Browntop fairway surface.

KEY ATTRIBUTES OF FAIRWAY GRASSES

ISSUE/ACTIVITY	FESCUES	BROWNTOP	RYEGRASS	POA ANNUA	CYNODON ¹	KIKUYU ¹
Potential environmental impact (e.g. resource use)	Very low	Low	High	High	Low	Very low
Characteristics	<ul style="list-style-type: none"> ▪ slow to establish ▪ poor wear tolerance ▪ ease of selective grass control ▪ olive / brown colour during summer 	<ul style="list-style-type: none"> ▪ considered the best cool season fairway surface ▪ dominant grass type on most fairways throughout NZ. ▪ Thatch can be a problem if over fertilised or watered 	<ul style="list-style-type: none"> ▪ fantastic presentation ▪ high plant numbers ▪ <u>essential</u> for a quality surface ▪ ease of selective grass control in the medium term ▪ regular seeding required 	<ul style="list-style-type: none"> ▪ can provide a quality surface with adequate resources ▪ thatch is a significant problem ▪ very sensitive to disease 	<ul style="list-style-type: none"> ▪ considered best warm season fairway surface ▪ poor winter colour ▪ thatch is a problem 	<ul style="list-style-type: none"> ▪ can provide a high quality playing surface ▪ coarse texture & yellow green colour is not typically liked by members ▪ thatch is a problem
Anticipated annual mowing requirements	50-70 cuts/year	60-80 cuts/year	95-110 cuts/year	95-110 cuts/year	60-70 cuts/year	80-100 cuts/year
Fertiliser (kg actual nutrient/ha/yr)	0-15kg	0- 40kg	100kg+	100kg+	30-45 kg	0-15kg
Nitrogen	0	0	10-15kg	10-15kg	0-15kg	0
Phosphorus	0	0	25kg+	25kg+	30-60kg	0
Potassium						
Water requirement (if irrigated)	3750-5400m ³ /ha/year	3750-5400m ³ /ha/year	5400 - 6000m ³ /ha/year	7500m ³ +/ha/year	1,500m ³ /ha/year	1500-2000m ³ /ha/year
Pesticide applications per year	2-10	2-10	10-25	10-25	5-8	5-6

¹ These grasses are an option where the climate is warm enough.

If your club would like more information on appropriate grass types for your golf course or Course Policy Documents, contact your NZ Sports Turf Institute agronomist.