Establishing fescue dominated roughs

New Zealand golf courses are becoming increasingly accountable and responsible in regards to enhancing the ecological value of their sites. More often than not such ecological enhancements can also contribute to improved playability and overall course character. An example of this has been an increasing trend over the past few years amongst many courses to establish (or in some cases reestablish) fescue dominated roughs.

Establishing a dominance of 'fine grasses' in out-of-play areas of the course can be a relatively slow and time consuming process but there are a number of factors to consider when embarking upon a programme of regeneration that can increase efficiencies and reduce the amount of time it can take to achieve 'fine grass' dominance.



Fig.1. A typical Kikuyu dominated out-of-play area on a golf course

Chemical controls of out-of-play areas:

The best time to establish fescue in rough areas is early autumn, this is when soil temperatures remain relatively high, there is plenty of available moisture and daylight hours remain sufficient. Alongside these environmental factors, (being a cool-season grass means) fescue will continue to establish and grow at a time when *coarser* warm-season grasses e.g. Kikuyu and couch grass are slowing down – thus providing a window of competitive edge for fescue establishment.

The process should begin with an initial treatment of selective herbicide to the proposed areas as early as March. There are a number of products available with proven efficacy in removing *coarse* grass species and leaving the finer species. For example the Active Ingredient of *pinoxaden* has been successfully trailed in the UK, (as '*Rescue*' Herbicide) in providing significant control and long term removal of ryegrass species at the following rates and timings: 1.33 L/ha from March through to June and then reduced to 1.0 L/ha from June through to October. One thing to bear in mind when using

pinoxaden to eradicate ryegrass is to stagger additional applications of selective broadleaf herbicides (i.e. *dicamba*) allowing a minimum window of 10 days between applications of *pinoxaden* and the broadleaf herbicide(s).

In New Zealand many of us have to deal with invasive warm-season grasses such as Kikuyu. When trying to reclaim these areas a combative approach of *haloxyfop* (*'Gallant'*) and broad spectrum herbicides e.g. *mecoprop*, *MCPA* and *dicamba* should be employed. Application rates will be somewhat site and situation specific depending upon the extend of Kikuyu grass dominance and the age and vigour of the turf. Application rates for *haloxyfop* range from 600 ml to 1.2 L/ha. Once again it is best practice to apply the *haloxyfop* and selective herbicide separately as tank mixing can have a negative impact upon efficacy of the active ingredients.

Some practical considerations when applying these chemicals to established rye and/or kikuyu areas include: ensuring good coverage of the turfgrass plant is achieved by maintaining a maximum of 50 cm nozzle height above the turf and using a medium grade nozzle size. The nozzles should be angled to be rearwards facing in order to counteract the forward direction of the prime mover and maximise leaf coverage whilst also drawing the chemical down in to the canopy of the plant. It is recommended to spray with a minimum water volume of 250 L/ha.



Fig. 2 A 'fine fescue' dominated (sparse) rough allows for the establishment of native wildflower species.



Fig.3 Playability of roughs is improved when coarse grasses are superseded with fine fescues

Enhancing the ecological value of out-of-play areas:

Where possible any establishment of 'finer fescue' roughs should be complimented with a wider ecological vision by; planting the appropriate native species, thinning out but not completely removing existing native plant species (i.e. trees, shrubs etc.) and possibly the incorporation of wildflower areas.

In New Zealand it is especially important to only establish wildflower areas with native seed species. Commercially available seed mixes from garden centres etc. may look particularly attractive however the constituents of these mixes are sometimes selected upon the basis of aesthetics rather than their ecological value. As a rule ensure any seed mix you use conforms to MPI Biosecurity Regulations.

Wildflower selections should also be made in consideration of your local soil and environmental conditions, are you on heavy clay, sand, shaded, cool season, warm season etc. Some examples of suitable wildflower species for New Zealand include:

Botanical name	Common name	Colour	Region
Centaurea cyanus	Cornflower mix	Pink, white and purple	Throughout NZ
Centaurea cyanus	Cornflower blue	Blue	Throughout NZ
Papaver rhoeas	Field Poppy	Red	Taranaki to Northland
Gaillardia aristata	Blanket flower	Yellow and red	Throughout NZ

Table .1 MPI Approved wildflower seed mixes for New Zealand

When looking to establish wildflower mixes through a reclaimed out-of-play area the following method of establishment is recommended:

Step 1: Eradication of warm season/weed grass species

Step 2: Cut and remove all dead matter and scarify area to be seeded

Step 3: Broadcast preferred turf grass species i.e. fescue or brown top bent over the site

Step 4: Broadcast preferred wildflower seed mix on to the site (ideally around May)

Step 5: Lightly roll (to ensure appropriate seed to soil contact)

Step 5: Consider irrigation source if establishing in late spring or during periods of prolonged dryness.

DO NOT APPLY ANY FERTILISERS

Step 6: Allow to establish (typically, September to April) ensure seed is set prior to cutting

Step 7: Cut area and remove arising's (Mid-June to July)

Step 8: In late winter apply follow-up applications of *haloxyfop* and/or selective herbicide to reduce competition in early spring

Step 9: Consider further overseeding with wildflower mix (this decision is somewhat intuitive and at the discretion of the Superintendent)

Step 10: Repeat steps 6 and 7

Note: after year 2 it should only be necessary to scarify the area in early winter once every 2 years. The cutting and removal of arising's should take place annually.

Where to establish wildflower areas?

Anywhere you can incorporate these areas on to your site is beneficial, however with careful planning their value to the biodiversity of the site can be further enhanced by siting such areas in proximity to:

- Watercourses provide additional diversity to an existing habitat and extending no-spray zones.
- Along woodland/treeline peripheries Provide additional habitat and grading of vegetative zone. This will be perfect for encouraging small birds and insect activity on the golf course.
- Around backs of tees and greens etc. These areas will reduce your mechanical inputs and the areas that may require intensive mowing. In such areas wildflowers and fescue roughs

will add diversity and visual character to the course in comparison to otherwise bland, green mono-stands of mown semi rough.



Fig.4 Enhancement of an out-of-play area with the establishment of fescue/wildflowers

Once you have your out-of-play areas confirmed and work has begun to start establishing fescue/wildflower areas on the golf course it is recommended to put in place an overarching ecological management plan for these (and other related) areas.

It can be a daunting task to begin changing the nature of a golf course. There is far greater chance of success when a plan is in place and a set of priorities identified so that section by section, targeted areas of the course can be addressed and completed before moving on to the next area. The zoning of the course is critical to ensure goals are made achievable and also progress towards these overall goals is monitored and reviewed in a methodical and step-by-step approach.

For more information about how SSDM can assist you in enhancing the ecological value of your golf course, contact:

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