

## Weeds as Indicators of Poor Lawn Conditions

Author: Chin Siew Wai

### Background

In Singapore, carpet grass (*Zoysia matrella*) is commonly installed in public open spaces, golf courses, homes and even on green roofs. A carpet grass lawn that has been subjected to adverse conditions<sup>1</sup> loses its density - a condition also known as thinning. Prolonging of any of these conditions leads to weak growth of the plant and death in some areas, where opportunistic weeds appear (Fig 1A). As carpet grass requires low mowing height and is slow spreading by nature, presence of weeds adds to the maintenance requirements of the lawn. In addition, weeds disrupt the uniform appearance of the lawn (Fig 1B).



**Fig 1.** (A) Weeds establish in the presence of empty spaces (voids) in a lawn and (B) presence of weeds disrupts the uniformity of the carpet grass lawn.

### Weeds as Indicators of Poor Lawn Conditions

Weeds are the result, rather than the cause of poor lawn conditions. However, once they establish, they become aggressive competitors for sunlight, moisture and nutrients. They fall into three broad groups: [A] Broadleaf [B] Grass [C] Sedges. Despite the problems that they cause, weeds can act as useful indicators of the soil conditions within a lawn.

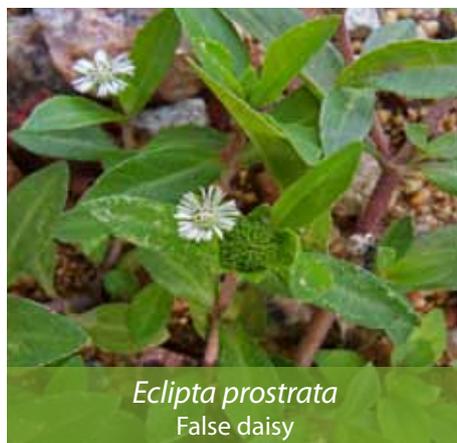
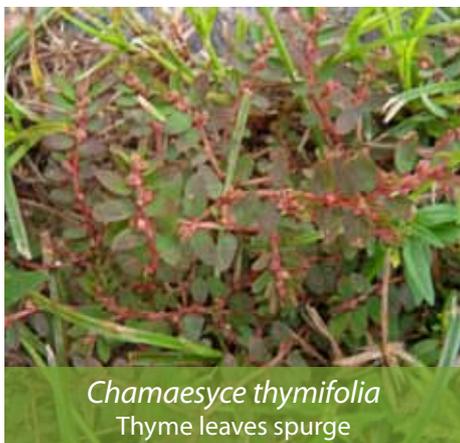
This Research Technical Note (RTN) documents some examples of the common weeds found on carpet grass lawns in Singapore. The observations were made from a number of sites in parks, playing fields and commercial buildings. As weeds adapt to a variety of environmental conditions, it is best to collect samples of the entire weed community, rather than a single species, for assessment of the lawn condition. In addition, soil pH testing will increase the robustness of the assessment.

<sup>1</sup>Adverse conditions include: drought, excessive shade, diseases, scalping due to improper mowing height, under-fertilization, or inappropriate irrigation regimes.

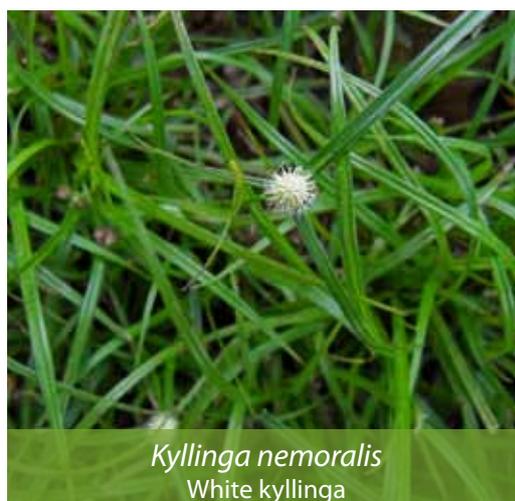
## A. Weeds that Adapt Well to Waterlogged Conditions

A lawn with poor drainage results in water-logging, and water can be trapped in the soil or on its surface after a heavy rain or regular irrigation event.

### Examples of Broadleaf Weeds Commonly Found on Lawn with Moist Soil



### Examples of Sedges Commonly Found on Lawn with Moist Soil



## B. Weeds that Adapt Well to Soil Low in Nitrogen:

Nitrogen is an important nutrient supporting the vegetative growth of turfgrasses. The presence of legumes often indicates low nitrogen content in the soil as they are able to fix atmospheric nitrogen into useful forms of nitrogen for their own use. A common example is the Tick clover (*Desmodium triflorum*).



*Desmodium triflorum*  
Tick clover

## C. Weeds that Adapt Well to Compacted Soil:

Compaction of soil depletes the roots of oxygen and results in the loss of vigour and death of carpet grass. Common indicator weeds are the Goose-grass (*Eleusine indica*) and Rat-tail grass (*Sporobolus indicus*).



*Eleusine indica*  
Goose-grass

## Weed Control Strategies

### Curative:

- a. Cultural
  - Physically pull out weeds.
- b. Chemical
  - Use herbicides to control sedges. Manual weeding is often ineffective on sedges as they have underground nutlets that continuously produce new sedge plants.

### Preventive:

This is an effective long term weed control program for carpet grass lawn to ensure that the carpet grass is adequately thick and dense to compete against weeds. This entails the following steps:

- a. Identify the indicator weeds on the lawn.
- b. Assess the lawn condition e.g. poor drainage, compaction, low soil nitrogen level.
- c. Modify the lawn environment using appropriate cultural means such as routine aeration of lawn; uniformly fertilize carpet grass, and optimal mowing height to prevent scalping of carpet grass.