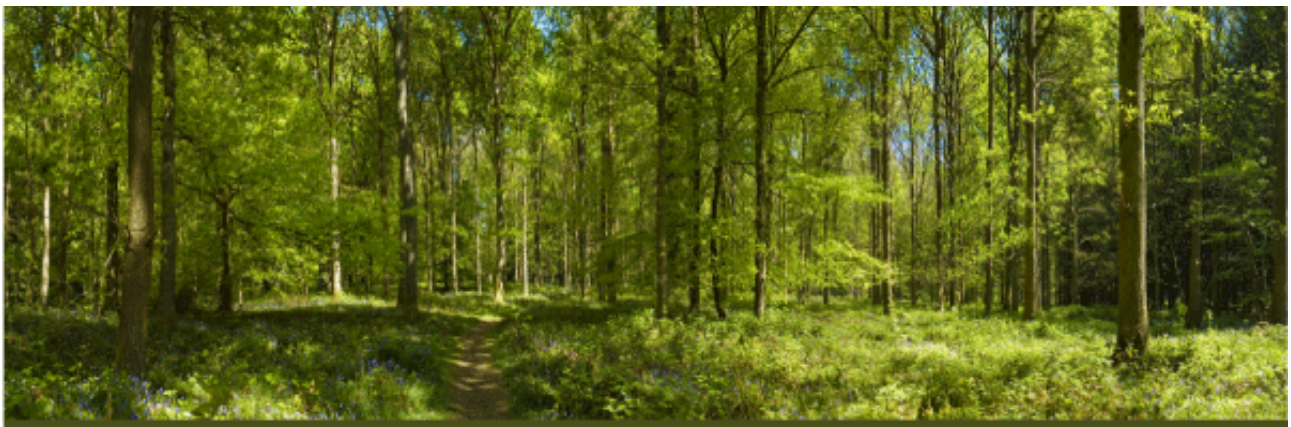


THE A-ACAP PROJECT

Australian Alternative Covers Assessment Program

FACTSHEET

PHYTOCAPS DESIGN GUIDELINE RESEARCH PROGRAM

The objectives of the research program are to determine whether phytocaps can meet EPA performance criteria more cost effectively than conventional caps in a wide range of Australian conditions. With funding available from industry sponsors, the ARC, and with matching 'value-in-kind- contributions from the participating universities, a significant research program has been arranged through the UoM – in collaboration with University of Adelaide, University of WA, Griffith University, Central Qld University, UNSW and CSIRO (Land and Water) - involving postgraduate research that will support the development of a reliable phytocap guideline. The topics of this postgraduate program are:

- ***Mel Salt / Mark Jaksa, Jim Cox (Uni of Adelaide, CSIRO)***
    - *How do soil changes affect phytocap performance*
        - *Quantify the changes in moisture retention, permeability and bulk density as an indicator of structural development in a phytocap compared to its initial "as constructed" properties.*
        - *Quantify the impact of any changes on the water balance of a phytocap to assess the sustainability of the phytocap.*
        - *Identify soil parameters in both in situ source soils and "as constructed" phytocaps most useful in modelling for phytocap design.*

- ***Hooman Maneshi/ Hossein Ghadiri, Alan Baker, Margaret Greenway and Nanjappa Ashwath (Griffith Uni, Uni of Melb and Central Qld U)***
    - *How do the physical, mechanical and chemical characteristics of the cover materials impact on plant growth, root system development and water uptake?*
        - *How do these characteristics change over time?*
        - *How do these changes impact on the long-term survival of the vegetation and consequently the sustainability of the whole system?*
        - *Which individual plant species and plant communities are likely to be most suitable for use in phytocovers in different parts of Australia?*

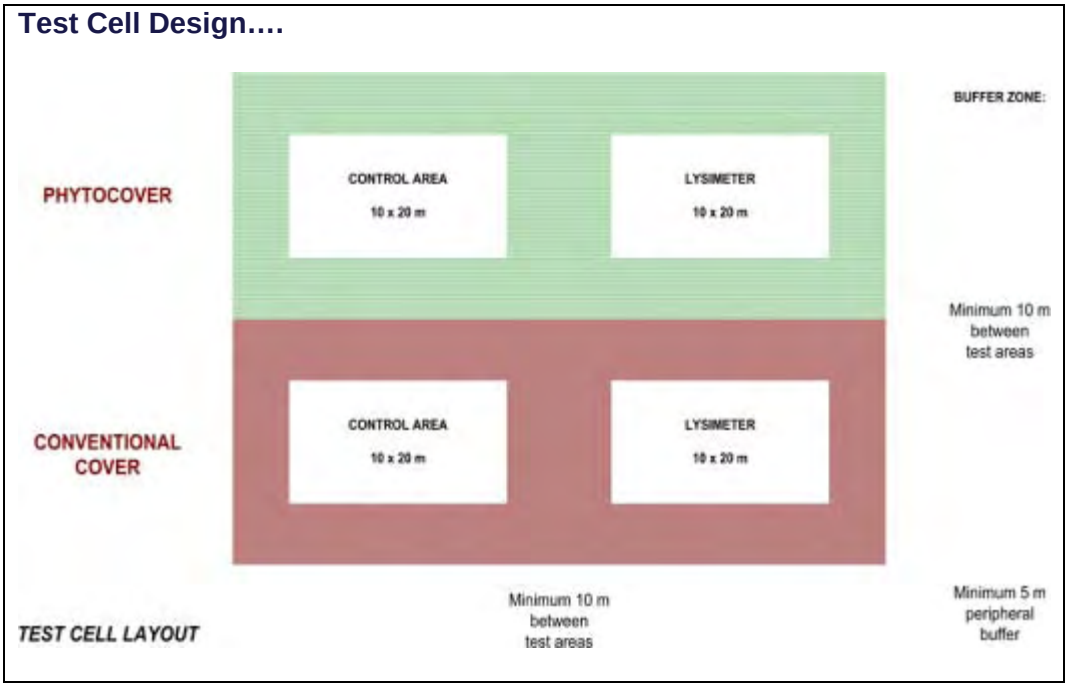
- ***Jianlei Sun/ Sam Yuen***
  (Uni of Melb)
    - *How do soil and plant characteristics and interactions affect the methane oxidation and odour reduction potential of phytocovers?*
        - *What soil physical and chemical characteristics, soil moisture parameters and plant species and growth parameters are most significant in designing phytocovers so that they exert optimal methane-oxidation activity?*

THE TEST PROGRAM

The test program involves five sites across different soil and climatic conditions. The sites are in Adelaide, Melbourne, Perth, Sydney and Townsville.

At each site, comparative caps (two phytocap and two engineered caps) will be constructed over an existing landfill. The comparative test sites will be constructed above a lysimeter to facilitate measuring rainfall runoff and landfill penetration. Control caps will be included to determine if the landfill environment has any impact on vegetation being trialled.

Test Cell Design….



The results of all five sites will be utilised – along with data gathered from laboratory trials – to develop a reliable ‘phytocap’ design guideline for Australian conditions.

RESULTANT PHYTOCAP DESIGN GUIDELINES

Following data gathering over the next three years, a ‘phytocap’ design guideline will be developed to assist regulatory agencies to assess phytocaps across Australia.

EXTENSION OF KNOWLEDGE

As the use of phytotechniques in landfill capping is a new field, the A-ACAP initiative will considerably extend current knowledge on the topic (and through the publication of the research papers) make this available to all potential users.

For further information contact:

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