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**Parliament of Australia
Standing Committee on Primary Industries and
Resources**

**Inquiry into
The Role of Government in Assisting Australian
Farmers to Adapt to the Impacts of Climate Change**

**A Submission by
Nursery & Garden Industry Australia (NGIA)**

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Inquiry into
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Nursery & Garden Industry Australia (NGIA) welcomes the opportunity to make a submission to the inquiry into *The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change*, and fully endorses the submission to this inquiry by Horticulture Australia Limited (HAL) on behalf of the Australian horticultural industries.

Nursery & Garden Industry Australia is the peak national industry body representing producers, retailers and allied traders involved in the production of plants across all states and territories of Australia. In partnership with state and territory peak bodies, NGIA is responsible for overseeing the national development of the Australian Nursery Industry. The Nursery Industry is a significant sector of the Australian horticultural industry and employs over 45,000 people in over 20,000 small to medium sized businesses with a combined supply chain market value in excess of \$6 billion dollars annually.

The Nursery Industry is a key conduit of information to consumers and gardeners, who 'manage the green-life' across 50% of the urban land in Australia that supports over 80% of the Australian population. In addition, the Nursery Industry provides green-life for several end users including:

- Ornamental retailers – Urban horticulture
- Commercial/private landscapes – Landscape supply
- Advanced in-ground stock – Landscape supply
- Interiorscaping – Indoor display/hire
- Fruit orchardists – Fruit tree production
- Vegetable production – Vegetable seedlings
- Revegetation production – Government, landcare, farmers etc.
- Mine site rehabilitation – Mining industry
- Forestry – Native and exotic timber production
- Cut flower growers – Starter crops

It is important to note that the Nursery & Garden Industry, and more broadly speaking Australian horticulture, requires recognition of its overall contribution to Australia's agricultural emissions when included in current and future climate change discussions. Currently, Australian horticultural industries fall within Agriculture, which in 2005, was responsible for approximately 16% of Australia's greenhouse gas emissions. The Australian horticultural industries contribution to these emissions is mainly through the use of

Inquiry into
The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change

nitrogenous fertiliser application, however it should be emphasised that Australia's combined horticultural emissions are approximately 1.2% of total agricultural emissions¹.

The Nursery & Garden Industry has the capacity to make a significant contribution to reducing greenhouse gas emissions and may also play an integral role in the mitigation of climate change. Historically, the Industry has shown to be resilient and adaptive in response to environmental pressures; no more noticeable than the ongoing drought which continues to impact across large expanses of Australia. In light of this adversity, the Nursery & Garden industry, with support, has the capacity to cope with climate change and remain viable in a highly variable climate.

Nationally, nursery production underpins more than \$10 billion dollars in horticultural production excluding urban horticulture. The provision of starter green-life crops for vegetable producers (seedlings), fruit producers (grafted trees) and forestry (tubestock) is the domain of production nurseries across Australia. The on-going security of our food and fibre supplies will be a critical aspect of our ability to mitigate and adapt to the effects of climate change and meet our international obligations. The Nursery Industry will be a key partner in this work through its ability to continue to supply quality starter stock and in the identification of suitable alternative plant varieties and production techniques that will ensure the viability of our food and fibre production.

On 17 February 2009, NGIA hosted the augural *Urban GreenScapes Symposium* in Canberra² to unveil the multitude of benefits of plants and green-life in the urban landscape that make a valuable contribution to reducing greenhouse gas emissions in the built environment. These benefits include:

- Reduction in energy consumption through strategic planting of green life such as green roofs and green walls
- Improved air quality through interception of pollutants and oxygen production
- Enhanced evaporative cooling effects through evapotranspiration
- Carbon sequestration capacity and consumption of CO₂ through photosynthesis
- Reduced heat island effect through shading of hard surfaces

¹ Department of Climate Change, Commonwealth of Australia (2008). Emissions trading stakeholder consultation agenda paper: options for coverage of agriculture. Retrieved 19th March, 2009 from <http://www.climatechange.gov.au/emissionstrading/consultation/pubs/ets-roundtable4-paper2a-agriculture.pdf>

² Nursery & Garden Industry Urban GreenScapes Symposium (2009). Retrieved 19th March from <http://www.ngiaevents.com.au/sympo2009/>

Inquiry into
The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change

- Interception of urban run-off
- Erosion control
- Enhanced aesthetics in the landscape

This symposium highlighted the needs for investment to develop an Australian resource to quantify the benefits of urban green-life as mitigating elements and part of the solution to climate change. In America, Researchers at the Centre for Urban Forest Research - a research unit of the United States Department of Agriculture (USDA) Forest Service's Pacific Southwest Research Station, have developed a comprehensive scientific model that quantifies these benefits in 16 different climatic zones across America³. This model provides a dollar value for the environmental benefits created by urban green-life, including the electricity saved by shade, which reduces the need for air conditioning. It can also quantify the value of urban green-life in reducing energy-related carbon emissions and sequestering carbon. In addition, this tool calculates the costs involved in maintaining urban green-life including establishment costs and pruning which can be weighed against the benefits. For example, in the city of Indiana, Indianapolis, this model has shown that urban green-life can return up to \$6.09US in benefits for every \$1US spent on tree care⁴. This tool is a necessity in order to efficiently manage this valuable resource and provided a sound platform for strategic planning and decision making at local, state and national levels. Although this tool has been successfully applied across America, its application in Australia requires further research, namely climatic and species considerations.

Investment in research is also required to evaluate the effects of climate variability on growing practices in production nurseries. The impacts of climate change on the Nursery Industry are many, but most noteworthy are the scientific models that suggest an increase in annual temperature coupled with an increase in extreme weather events, such as floods and tropical cyclones across large expanses of Australia. Furthermore, the industry faces the risk of competition from 'green energy' companies utilising pine bark (primary component of growing media) for carbon offsets. Research areas for immediate investment include production area design, new growing structure type and design and alternative growing media components. Moreover, as Australia progressively moves towards a carbon constrained economy, the implementation of policies that progressively place a price on greenhouse gas emission will further create pressure on the Nursery Industry.

³ USDA Forest Services (2009) Retrieved 19th March, 2009 from <http://www.itreetools.org/index.shtml>

⁴ Peper P, McPherson G, Simpson J, Vargas K. (2008). City of Indianapolis, Indiana Municipal Forest Resource Analysis. Retrieved 19th March from http://www.fs.fed.us/psw/programs/cuft/products/psw_cuft738_IND_MFRA.pdf

Inquiry into
The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change

As well as this, quantitative data is needed to assess the economic impact of an emissions trading scheme (ETS) on the Australian Nursery Industry. The implementation of an ETS will expose the Nursery Industry to higher energy, fuel and other energy-price sensitive input costs (such as chemicals, packing and contracting costs) either up or down the value chain. Production nurseries are considered 'price takers' and historically have absorbed these costs resulting in added financial strain. As such, these nurseries will have limited capacity to pass these costs onto consumers.

Investment is also urgently required for extension activities to collate and evaluate emission data in production nurseries across Australia and to facilitate detailed economic modelling to project emissions within the industry using actual emission data ascertained using this tool. Currently, NGIA is working on developing a carbon footprinting tool to estimate emissions from production nurseries, due for release in December 2009. This tool will provide full lifecycle and cost/benefit analysis to measure the environmental impacts of specific nursery lines from cradle to grave. This model will benchmark the carbon footprint of production nurseries, identify areas of improvement and prioritise potential actions for mitigation through offsets or emission reductions. Emission benchmarking based on nursery 'best practice' emissions will be reviewed and updated as technology improves.

Nursery & Garden Industry Australia recommends that the Australia Government provides ongoing support to industry through rebates to support business choosing to implement renewable energy technologies. Nursery & Garden Industry Australia recognises that greater adoption of renewable energy technologies is a sound approach in reducing the demand on non-renewable energy, hence reducing emissions among production nurseries. To address this issue, NGIA is working on evaluating energy co-generation, namely solar and wind power for the generation of electricity onsite. Utilising renewable technologies in *lieu* of non-renewable energy may present opportunities for growers to potentially reduce the economic burden once the ETS is in place.

Nursery & Garden Industry Australia believes that extension activities are fundamental in order to educate the grower of their liability and promote relevant adaptation and mitigation strategies. It is imperative that production nurseries possess the relevant knowledge and skills to make these informed management decisions and at the same time, are well informed about the emerging 'carbon economy'. An ideal medium for delivery of this extension is through industries Farm Management System (FMS). This industry owned

Inquiry into
The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change

system incorporates the Nursery Industry Accreditation Scheme Australia – Best Management Practices (NIASA-BMP), EcoHort®, which promotes best practices in environmental and natural resource management and BioSecure HACCP, which promote best practice in pest and disease management and biosecurity risk assessment.

Further investment of funds is required to modify these programs with effective emissions management tools (e.g. lifecycle carbon footprinting tool) and expand on existing energy and waste modules to reduce greenhouse gas emissions whilst optimising farm nursery production, profitability, sustainability and professionalism. It is imperative that these programs are built on the best available science and are regularly updated as research evolves as new findings on innovative practices to reduce greenhouse emissions become available. The Nursery Production FMS could provide an opportune and complementary transitional measure to encourage nurseries to take early action to mitigate emissions. Investment is required to ensure the resources are there to deliver this valuable program to whole of industry through a skilled extension network. Furthermore, greater support and recognition of these programs is required by the Australian Government to assist in widespread uptake across whole of industry.

Owing to the prediction of increased climatic uncertainty, ongoing research investment is required by industry to develop key pest/disease contingency plans for high risk biosecurity pests/diseases. Research investment is required into the effect climate change will have on the lifecycles of existing pest, diseases and weeds. Pest, Disease and weed modelling, using climate forecast data, should confirm potential new pest, disease and weed species and appropriate control measures, including new pesticides and improved integrated pest management (IPM) techniques. Investment in the promotion and ongoing development of the BioSecure HACCP program is viewed as the most suitable method of preparing growers for these changes.

Growers will also require further development of decision making tools such as;

- Climate forecasting tools – further develop climate forecasting data will provide growers with regional seasonal climate forecasts for a range of both growing regions and market areas (e.g. Brisbane, Sydney and Melbourne)
- Water use efficiency data – develop and expand research and adoption of improved innovative irrigation practices and equipment. This is best achieved by further development of 'Waterwork' (the Nursery Industry irrigation best practice system)

Inquiry into
The Role of Government in Assisting Australian Farmers to Adapt to the Impacts of Climate Change

along with on-farm assistance in change management, incentive based adoption programs and industry skilling

- Plant varieties – research to discover species and cultivars most suited to the changing climate with particular emphasis on urban horticulture, fruit and vegetable, forestry, tree and re-vegetation production

Nursery & Garden Industry Australia looks forward to developing partnerships with all levels of Government aimed at ensuring the Nursery Industry successfully adapts to the challenges presented by climate change and climate variability. This will ensure that industry continues to make a positive contribution to both the Australian economy and ongoing climate change adaptation and mitigation.



Robert Prince
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Nursery & Garden Industry Australia
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