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Commercial Protected Cropping Production Methodologies and Systems Applicable to Vegetable Growers in Southern Victoria

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The Pratt Foundation/ISS Institute Overseas Fellowship

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Executive Summary

The main focus of the Fellowship was to look at concepts involving hydroponic growing systems. Hydroponics is the production of crops in isolation from the soil, either with or without a medium, with their total water and nutrient requirements supplied by the system. Production takes place either in a greenhouse or outdoors, and systems can recirculate or allow nutrients to 'free drain' for reuse on to other crops, such as trees, and for pasture improvement. The generic industry is highly efficient in its use of all inputs including water, fertilisers, labour, land and energy. Growers can expect to produce crops that will exhibit faster growth rates with significantly higher yields and improved quality due to a well maintained growing environment.

Utilisation of hydroponic systems in conjunction with controlled environment glasshouses means that:

- Growers can grow crops out of traditional seasons and native areas. This gives growers a higher premium for their product at times of high demand offering higher returns for farmers' efforts
- Closed irrigation systems used in hydroponic growing can deliver major energy and water efficiencies, with near zero waste water resulting from production methods.

The protected cropping industry has clearly identified that it is looking for its future management to have the skills that are needed to monitor and manage both the growing structures and the environment within them, in order to achieve maximum output from intensive systems. The industry is currently looking to either employ overseas practitioners who have these skills, or send staff members overseas to gain these skills.

The common theme running though the protected cropping industry was a lack of training and skills development options for all levels of participants. A 2005 review of the industry performed by the Australian Hydroponic and Glasshouse Association (AHGA) explored market failures and constraints to industry development with the main industry representatives in all Australian states. This review resulted in identification of around 19 issues that urgently required attention, with the number one common issue identified as a lack of skills training opportunities. The identified skills and knowledge deficiencies utilised in the Fellowship comprised of a list of subject areas identified by the industry. The skills have been identified by the AHGA as being pivotal to training within the industry.

The Fellow travelled to Belgium, Netherlands and the United Kingdom to visit a range of training establishments, commercial growers and ancillary suppliers of technology.

During this period the Fellow was able to experience first hand the latest technology, growing methods and processes associated with commercial hydroponic systems currently utilised in Europe.

Since his return, the Fellow has been actively involved in the development of a controlled environment horticulture training facility to allow for the delivery of training to fill the identified skills deficiency.

This has led to the development of a design and technical specification that will see the establishment of the most advanced controlled environment horticulture facility in Australia.

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The training centre itself will see an initial construction of a 1,000 square metre commercial glasshouse with a height of six metres. A further expansion of an additional 1,000 square metres of glass is proposed within a two-year time frame. In order to ensure within both facilities that current 'best practice' and growing techniques are adopted in any future developments, the Fellow has been working closely with a consortium of three commercial companies (Faber Glasshouse, Greenworks, and Powerplants) to achieve this aim.

Contained within this structure will be the latest technology in environmental management, staff management, and crop production. The facility will also contain specialised computer-based and practical teaching resources that will allow students to adopt a hands-on, 'learning by doing' approach to their training.

As part of this development, the Fellow will be actively involved in the initial project management of the glasshouse complex, and will then be involved in developing new and emerging training opportunities. Part of this program will see the Fellow having the ability to impart the knowledge that he gained overseas in to both the facility development process, and the resultant training opportunities.