



CARBROOK NURSERY— IRRIGATION UPGRADE

*“The upgrade to the site
will allow us to pursue
alternate crops and
increase our production
within the capacity of the
site and the resources
available”*

Dan Brown 13.03.2012

Carbrook Nursery is situated on 4.4 hectares of land at Fischer Road at Carbrook, south of Brisbane. The site currently has 4000 square metres of production area in the full sun and 420 square metres of shade production area. Carbrook Nursery has traditionally grown low water use plants such as Yucca elephantipes and Agave species in 20cm to 35cm containers and has recently taken the management decision to change business focus broadening the range of plants grown and increasing overall production. The limiting factor to the change of business direction is the current facilities: site drainage, growing beds, water supply and the current irrigation system.

The nursery industry best management practice program, NIASA was identified as the model for the site upgrade to be completed over time. Items identified for modification or upgrading according to the NIASA guidelines have been prioritised during a site survey ensuring a clear direction for the site improvement.

Drainage of the overall site, particularly the growing beds was identified as a high priority. Existing production beds, paths and roadways were raised and efficient drainage systems installed ensuring both rain and waste water is removed. Recent heavy rains successfully tested the upgrades to the production facilities and improved drainage system.





A new growing media storage bay has been constructed along with a work shed for all weather production and dispatch. Investigation of the irrigation system at Carbrook Nursery identified a number of system upgrades to meet the requirements of the new business plan. The current pump system with a variable speed drive were retained, however a new irrigation mainline to the growing pads was designed and installed providing the flow and pressure required by the new sprinkler system. A Hunter ACC 2 wire irrigation controller will manage the irrigation requirements of the site.

Water quality management will be addressed with the installation of a new media filter and a sodium hypochlorite disinfection system. The current irrigation retention pond is scheduled to be cleaned and a series of storage tanks installed to manage the site irrigation requirements

Existing sprinklers spaced at 9m x 10m were identified as inefficient and unsuitable causing compaction of the growing media, splashing of water and media from the containers onto the growing pads, and possible damage to newly planted plugs. Testing of these sprinklers (MAR 8.1mm/hr, CU 67.1%, SC 4.47) showed operation well outside nursery parameters. Calculating irrigation run times to manage the irrigation requirements of the new crops during summer (average 8mm) would require the current sprinkler system to operate for 264 minutes each day to irrigate the proposed new crop.

Nelson R2000 sprinklers with a K4 6° Turquoise plate and Green #14 nozzle were selected and installed at 6m x 6.5m spacing on 1.6m risers with 'road guards' located on the perimeter sprinklers and operated at 2 bar. Testing of the new sprinkler system, including growing areas affected by splash from the 'road guards' provided results that meet or exceed industry parameters (MAR 9.7mm/hr, CU 86.6% , SC 1.41) requiring 70 minutes of irrigation to provide summer (average 8mm) irrigation requirements for the new crops.

The new sprinkler system will deliver a 40% improvement in water use efficiency.



Nursery & Garden Industry
Queensland

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The SEQ-IF program is a partnership between the Nursery & Garden Industry Qld. and the Queensland Government to provide on-farm support to growers in Water Use Efficiency and the Nursery Production Farm Management System through on-farm assessments, information support and training.