

Engineering developments at NTV 97

The following is an article disseminated amongst various grower organisations, and is a brief review of technical developments which were of interest to the author. Omission does not imply criticism, nor inclusion endorsement. A show the size of NTV has so many new developments it is impossible to note them all.

This year's combined NTV and Aalsmeer show seemed to confirm some of the trends seen in recent years, and the following brief article reviews some of the engineering developments and highlights - there are doubtless others.

Greenhouse structures

The 'new' 4.8m wide 'Venlo' spans are now available from a larger number of glasshouse builders, and Alcomij (component manufacturers) have also added it to their range. Around 3ha has now been erected, mostly in the Netherlands. Obviously this type of structure still fits in with the basic Venlo module in that 2 spans form a 9.6m bay, equivalent to a triple 3.2m Venlo (the 'normal' width). The principle reason behind the move is for increased light transmission - obviously once you've reduced the thickness of the gutter down to a minimum the only room for improvement is to have less of them!

On the gutter design there were a few changes evident: firstly we may be seeing a slight resurgence in the popularity of the steel gutter again. The split between aluminium and steel in the Netherlands is currently around 80% to 20%, but this is starting to alter of late. The reasons for this are mainly cost (aluminium has risen sharply recently, and is forecast to carry on rising), but also narrower steel gutters (Boeters new steel gutter is 14cm), reduced significance of gutter width with wider gutter spacings, and improved longevity due to steel gutters often being both galvanised and white powder coated. Secondly new legislation in the Netherlands on separation of internal greenhouse drainage from external roof water systems means that the condensate drains have to be separated, and this has led to some modified designs from gutter manufacturers. Single skin aluminium gutters have probably now reached their narrowest, and the twin wall type on display is becoming necessary to allow for yet narrower gutters whilst giving the strength necessary for the increased loads (due to greater structure height and wider span).

There are no several companies with 'Venlo' houses and fully opening rooves, following on from the Deforche 'Cabrio' concertina type, although these new ones mostly hinged at the gutters and opening at the ridge. These have mostly found favour with plug producers and garden centres, where the ability to achieve ambient conditions can more than offset the additional capital cost and light loss.

CO2 enrichment

Of interest to growers considering CO2 extraction from CHP units is that the number of manufacturers producing systems for exhaust gas scrubbing from CHP units is now 4 (Hanwell 'Codinox', Siemens, Steuler, Inodes), but the main novelty is the possibility of a biological scrubbing system, being developed by Paque bv. This will be based on using an organic molecular material (ligand) together with ethanol. Flue gases are passed through a matrix sprayed with the mixture, and NOx are converted, with the mixture regenerated to allow re-use (see Figure). One of the main benefits of the system is that it can operate at cooler temperatures, but it is also hoped that there will also be a cost benefit. Trials are currently underway, and the unit may be commercially available within 1 - 2 years it is believed. The same company are also attempting to produce a biological system for CO removal / conversion.

One of the problems facing all growers with CO2 systems other than pure is how to measure NOx levels at a reasonable cost. EnviCo are developing a new detector working on chemi-luminescent principles (a chemical change affects light qualities of the gas) for NOx and ethylene, which although not a new technique is new to horticulture.

Computers

One of the noticeable features of this year's NTV was that there are now a significant number of

computer systems using a pc and Windows user interface, whereas for the past few years it has been the few (mainly van der Berg's Aco system, sadly without a distributor in the UK) that has been showing growers how easy it could be!

The next major step is starting to manifest itself now, with the industry starting to follow the industrial control route and use networks with addresses for individual components, such as pumps and valves. For larger installations there is likely to be a significant cost reduction in the long term by such a system, although at present the number of compatible components is not that great. Honeywell are the first with this approach, which reflects their strength in the industrial controls market, and the horticultural version of the Excel 5000 is based on this LonWorks system.

Van Vliet's Synopta system has a visual representation of the nursery, allowing you to take something similar to a virtual reality walk, checking conditions as you travel.

There has also been an increase in the number and sophistication of the organisation programmes for controlling production, organisation and spacing of plants, such as the new Optigraph which allows the grower to examine the outcome of various different management decisions in terms of production scheduling.

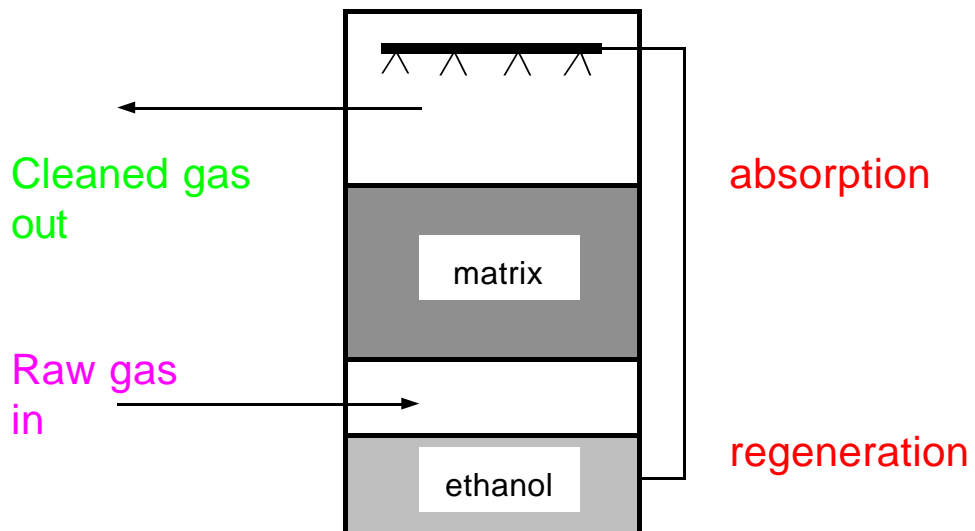
Other Machinery

Olimex showed the new label system which attaches the label to the flower bunch, rather than to the packaging; the hope being that growers can increase the awareness of their own identity in the market.

In this year's show there was still a lot of emphasis on treatment of recirculation water from substrate systems, but with no major differences over NTV '96. Bruin de Bruin were exhibiting a new micro-filtration system in addition to their reverse osmosis (RO) units. This is still a relatively new technology, particularly to horticulture, and works on a substantially lower pressure than RO.

Philips Son-T bulb is now produced with less welds, and incorporates an alloy disc for oxide removal during the vacuum forming, and these improvements are said to give a longer life.

Biological exhaust gas scrubber



Scrubbing



Regeneration

