

MINUTES OF THE 1995 BUSINESS MEETING OF THE CONTROLLED ENVIRONMENT USERS GROUP

The annual meeting of the CE Users Group was held on Tuesday 12th September 1995 in Moreton Hall at the Warwickshire College of Agriculture.

The meeting opened at 20.25 hours.

The Chairman, L. D. Incoll, opened the meeting, welcoming newcomers and explaining the purpose of the meeting.

Apologies were received from Colin Eagles and Margaret Ford.

1. Minutes of Previous Meeting

The minutes of the 1994 meeting, held at the University of Aberystwyth, were approved.

2. Matters Arising

M94/2 (M93/7a) G. Taylor - Sanyo supplied 'Super red LEDs from Japan' information to be included with these minutes.

M94/3 User's information on running costs was received from R. Hughes - Long Ashton only; to be discussed later in the meeting.

M94/3c G. Taylor - Sanyo reported that the 'standard conditions for specifying CE chamber environments' was the subject of continuing discussion with R. Randall - HRI, Littlehampton and others.

M94/14 The 'Newsletter' suggestion had been developed by Richard Woodfin into the idea of a CEUG page on World Wide Web at Imperial College at Silwood Park. As R. Woodfin was no longer at Imperial College, L. D. Incoll said he would investigate the possibility of setting up a World Wide Web page at Leeds.

3. Management, Staffing, Running Costs

J. Franklin - Rothamstead said that costs to outside users were about £2.5k to £3k per square metre per annum.

S. Cranston - HRI, Wellesbourne told the meeting that a Saxcil cabinet cost about £12 per day and said he would consider distributing the costing paper with these minutes.

4. Maintenance, Servicing, Spares

G. Crowhurst - HRI, Wellesbourne mentioned that, in the process of upgrading the Saxcil cabinets, many of the older sub-assemblies were being usefully replaced by modern alternatives as would be seen on the Wednesday site tour.

5. Control Systems

The comment in minute 4 applied also to control systems.

6. Humidification and Irrigation

A. Nichols - John Innes, reported that the use of reverse osmosis (RO) water supplies extended the life of their ultrasonic humidifiers to about 5 or 6 years.

I. Baker - Vindon, added that because the transducers and their printed circuit boards (PCBs) were matched, it was necessary to change both when one or the other failed. This would cost about £130 and there was only one UK importer. G. Taylor thought Sanyo could improve on this pricing.

G. Taylor - Sanyo asked the delegates for their reaction to the *Legionella* talk and, in particular, the relevance of service methods and intervals.

A. Nichols - John Innes said that they add biocide to their RO humidification systems about every 2 to 4 weeks.

There followed some discussion as to how it might be possible, in various types of humidification system, for bacteria to be lifted from the water and carried over into the air flow. It was emphasised that users have a statutory duty to satisfy the Health and Safety Executive (HSE) that systems are being managed and monitored safely.

7. **Lighting**

After suspecting that grain growth problems might have been attributable to the spectrum of the growth lamps, A. Nichols - John Innes had HQI lamps tested by the manufacturers, Osram, and found that, after 12 years use, lamps were spectrally as new but with up to 50% loss of output.

A. Nichols - John Innes said Tridonic produce a ballast which is suitable for both low pressure sodium lamps and for 400 Watt HQI lamps.

J. Franklin - Rothamsted referred to the differences in spectral output of the SON-T and various similar types of lamps commonly in use in glasshouses.

R. Hughes - Long Ashton, reminded that glasshouse growth lighting is generally supplementary to daylight whereas cabinet growth lights are the sole source and therefore must have a suitable light quality.

8. **Instrumentation, Sensors, Monitoring**

No points were raised.

9. **Heat Reclamation and Energy Management**

IACR presented a summary of their energy costs. They pointed out that they have a program of lamp maintenance which involves changing one third of their lamps every 5 months so that all are changed within 15 months. The chairman thanked them for their efforts in producing this report.

G Taylor - Sanyo said that they were rarely asked about the energy costs by their prospective purchasers.

There followed discussion about various methods of charging and it was emphasised that planned life and depreciation were equally important considerations.

10. Fabric, Glazing and Reflective Materials

No points were raised

11. New Equipment, Recent Advances

G. Taylor - Sanyo said that they were now using Philips 840 fluorescent tubes which are claimed to suffer less than 5% drop in lumen output at 12,000 hours life.

12. Plant Growth Problems

C. C. Hole - HRI, Wellesbourne, reported an "intumescence, with eruptive, explosive areas of leaf on potatoes which had been moved from a 15°C to a 20°C environment. R. Randall - HRI, Littlehampton said this had been observed before in circumstances of high relative humidity and low air flow. R. Hughes - Long Ashton claimed that a drop in relative humidity of about 10% had solved a similar problem for them,

13. Safety

No points were raised

14. Any Other Business

K. B. Field - IGER Aberystwyth, asked what future was foreseen for LEDs in the course of attaining light energy savings.

The Chairman reported that 'Superbright' LEDs with a 660 nanometre peak could provide $125 \mu\text{mol m}^{-2} \text{s}^{-1}$ at a distance of 200 mm.

15. Treasurers Report

The treasurer, Alan Nichols, read his report of 14 August 1995 which revealed a healthy closing credit balance of £1454.87. It was moved by Chris Hole - HRI, Wellesbourne, and seconded by Chris Dudley - Dow Elanco, that this report, subject to audit, be accepted as read. Carried unanimously.

16. Date and Place of Next Meeting

As Silwood Park (Imperial College) is no longer a viable venue for the 1996 meeting, it was proposed that it should be held at Long Ashton Research Station during the week of 16th to 20th of September, the dates to be confirmed.

Some suggested themes for the 1996 meeting are:

Climate change;

CE facility specifications;

Data logging and instrumentation.

Suggestions or proposals for the 1997 meeting venue would be welcomed.

The chairman proposed a vote of thanks to the Wellesbourne team for hosting the meeting and to the Warwickshire College and the caterers for their contribution.

The meeting closed at 22.05 hours.

George Crowhurst & Alan Morgan (HRI, Wellesbourne),
Recorders,
29 February 1996

**LIST OF PARTICIPANTS
CONTROLLED ENVIRONMENTAL USERS' GROUP MEETING 1995
AT HORTICULTURAL RESEARCH INTERNATIONAL
Wellesbourne, Warwickshire**

Aldous J.	John Innes Centre	Jones H.G.	HRI Wellesbourne
Anderson G.	University of Warwick		
Baker I.	Vindon Scientific	Lappage M.G.	University of Leeds
Balcam M.	John Innes Centre		
Bell A.	Dept of Agriculture, Belfast	Macrae N.	Jencons Scientific Ltd.
Bignell G.	Nickerson Biochem Ltd	Mellor J.	Elga Environmental Ltd
Brown J.	Trinity College, Dublin		
Burtenshaw A.	Sussex University	Morgan A.	HRI, Wellesbourne
Chivers K.E.	University of Reading	Nichols D.A.	John Innes Centre
Clifford S.	HRI Wellesbourne		
Cranston S.	HRI Wellesbourne	Palmer, A.	Sanyo Gallenkamp
Cross A.	BBC, Silwood Park	Parkinson K.	PP Systems
Cross J.	Elga Ltd.	Parkinson R.G.	LARS, Bristol
Crowhurst G.E.	HRI, Wellesbourne	Pearman I.	Rothamsted Exp. Sta.
Curtis P.	John Innes Centre		
Dudley C.	Dow Elanco Ltd.	Randall R.	HRI, Littlehampton
		Roberts B.	HRI East Malling
		Ross J.	HRI Littlehampton
Field R.B.	IGER, Aberystwyth	Roylance A.	Vindon Scientific
Franklin J.	Rothamsted Exp. Station		
		Sawford K.	IACR Rothamsted
Gay A.P.	IGER, Aberystwyth	Scott M.	Inst. of Measurement & Control
Gill P.	SCRI, Invergowrie		
Gordon N.	JS Humidifiers	Stratton P.	Zeneca Agrochemicals
Hamer P.J.	Silsoe Research Institute	Taylor G.K.	Sanyo Gallenkamp
Harris R.J.	Long Ashton Research Station	Thomas P.W.	AgrEvo UK Limited
		Turner P.	LARS, Bristol
Harrison M.	Lancaster University	Turner W.T.D.	E.J.Steill Ltd
Harrison G.	IACR Rothamsted		
Hart D.	HRI Wellesbourne	White A.	Sanyo Gallenkamp
Henley P.	U. Wales, Aberystwyth	Wildman D.	Imperial College
Hole C.	HRI Wellesbourne	Wilkinson J.R.	Lancaster University
Hughes R.F.	LARS, Bristol	Wilson B.J.	Wye College
		Woodfin R.M.	IC, Silwood Park
Incoll L.D.	University of Leeds		

APPENDIX

Item submitted by G. Taylor (Sanyo) relating to the Minutes of the 1994 Business Meeting – Matter Arising M93/7a.

UTILIZATION OF SUPER-BRIGHT LIGHT EMITTING DIODE(SBLED) AS ARTIFICIAL LIGHT SOURCE FOR PLANT GROWTH

Tomohiro Yanagi* and Kensho Okamoto

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To evaluate the possibility of SBLED as an artificial red light source for plant growth, a lighting apparatus (36 cm long by 28 cm wide by 1.66 cm thick) was made by using the 765 SBLEDs.

The SBLEDs emitted pure red light which had a peak wavelength at 660 nm and a wavelength range of between 620 nm and 680 nm. The light intensity of 125 micro mol / m² /s obtained at a distance of 20 cm from the SBLEDs.

Five spinach plants were grown under the SBLEDs and 40 w fluorescent lamps. The growth under the SBLEDs was slightly less than under the fluorescent lamps.

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