

Meeting minutes
HIGHLIGHTS

NCR-101 Committee for Controlled Environment Technology and Use
26th – 29th April, 2003
Guelph, ON, Canada

Attendants (listed in no particular order):

Chieri Kubota, David Tremmel, Reg Quiring, Rob Kerslake, A.J. Both, Erik Runkle, Desmond Mortley, Keith Ingram, Henry Imberti, Rob Pauls, Dave Wilson, Meriam Karlsson, Dick Gladon, Eugene Reiss, Robert Pollock, Dave Fleisher, Roy Young, Peter Ling, Rich McAvoy, Gianpaolo Bonaca, Mark Romer, Tracy Dougher, Cary Mitchell, Ted Tibbitts, Wade Berry, Allen Wright, Gary Gardner, Alex Turkewitsch, Mike Dixon, Bruce Bugbee, David Brault, Sharon Reid, Marc van Iersel, Jonathan Frantz, Steve Klassen, Brent Shantz, Dave Flood, Muhammad Iqbal, George Adamson, Richard Vollebregt, Daniel Schmoltdt, Andrew Bass, Noel Folkard, Ramesh Kanwar, Marc Theroux, Mike Kolbe, Gary Stutte, Neil Yorio, A.O. Rule, Ray Wheeler, Yang Yang, Christopher Sperk, Youbin Zheng, Tsuyoshi Okayama, Richard Worsfold, Robert W. Langhans, Lou Albright, Arthur Cameron

Executive Committee

David Tremmel, Chair
Reg Quiring, Vice-Chair
Chieri Kubota, Secretary
A.J. Both, Past Chair

Administrative Advisor's Report

2004 NCR-101 meeting in Australia Ramesh Kanwar requested Dave Tremmel to have some time in the current meeting agenda to discuss strategy for approving the Australian meeting. Ramesh will write a letter to the Committee of Nine Experiment Station Directors, as he did for the UK meeting and he will also give a presentation at the Committee meeting to have the upcoming Australian meeting approved.

CSREES (USDA Cooperative State Research, Education and Extension Service) Report

NCR-101 2004 meeting Dan Schmoltdt, Ramesh Kanwar and David Tremmel submitted in February a proposal to CSREES for supplemental travel funding for the upcoming NCR-101 meeting in Australia. At one time, this funding opportunity was considered likely to have funding of \$35,000 for a three year budget cycle (2002-2004). However, there are concerns relating to conflicts with Congressional support of agriculture experiment stations and issues relating to the recent budgetary problems of many agriculture experiment stations. The CSREES funding is still expected but possibly a smaller amount (around \$10,000).

ASHS CE (Growth Chamber and Controlled Environments) Working Group Meeting Report

Chieri Kubota summarized the ASHS CE working group meeting held on April 25th just before the NCR-101 meeting. Chieri explained that the CE working group was willing to share information with NCR-101 and expected more interaction between the two groups. Several ASHS events supported by CE working group were planned, such as a colloquium on "Bio-Derived Energy Sources for Protected Horticulture". CE working group supported another colloquium held during the International Horticultural Congress in August, 2002, namely "Mission to Mars", organized by Gary Stutte. A book of proceedings is expected as a volume of Acta Horticulturae.

NCR-101 Website Update

Mark Romer reported that significant updates and improvements were made to the website (<http://www.ncr101.duke.edu/>). Measurement standards and reporting guidelines published in Biotronics (vol. 29, 9-16, 2000) are now available on the NCR-101 website.

Dave Tremmel brought up the issue of losing the NCR-101 website host, associated with Duke Phytotron's closure (after 2004). Dave asked that anyone who can host and maintain the website would contact him. Dave stated that McGill University could host the website temporarily but a new, more permanent host should be sought.

Instrument package report

Bruce Bugbee stated that it was a relatively quiet year for the instrument package due to a transition of different instruments (from calibration instruments to more novel instruments). One new introduction is a spectroradiometer. This spectroradiometer has the capability of measuring a wider range of wavebands starting from UV to IR range. Account of the instrument package is shown below.

NCR-101 Instrument account (April 2002 to April 2003)

Beginning balance			\$1,115.18
Expenses			
	6 award plaques	\$ - 598.50	
	Balance in Account		\$ 516.60
Payment pending		\$ +300.00	
Total			\$ 816.60

Guidelines of measuring and reporting growth chamber environments

A.J. Both distributed a draft handout of "minimum guidelines", a condensed version of the guidelines published by the ASAE and in Biotronics. These minimum guidelines will be widely distributed among growth chamber users, manufacturers, and journal editors. An international committee formed at the NCR-101 meeting in the UK has worked on developing these minimum guidelines. Once it is determined to be published, several versions are planned to be tailored towards (1) Europe, (2) NZ/AU, and (3) North America. A.J. Both would feedback the comments made at this meeting to the international committee, and finalize the guidelines in the next couple of months. Regarding the number of copies to be printed, A.J. explained that the committee had not made any decisions. Initial idea was distribution as a handout at scientific meetings or among institutions. Possibility of publication in scientific journals was not known. Publication at a website of organizations (ASHS or NCR-101) was suggested.

Revision of plant growth chamber handbook

At the 2002 meeting, a decision was made to start working on updating the growth chamber handbook (eds. R.W. Langhans and T.W. Tibbitts) published in 1997 and a committee was formed (Marc van Iersel, Corinne Rutzke, and A.J. Both).

Keith Ingram proposed to edit a Book on Controlled Environment Systems for Agriculture, as an integrated activity incorporating diverse groups working in controlled environments (NCR-101, Crop Science, and others). The major difference between this proposed book and NCR-101's plant growth chamber handbook is that the book will cover all controlled environment systems and it would include chapters on insect pests and diseases in controlled environment. Since there would be many duplications between the two publications, discussion was opened on whether we should combine the two and publish them as one integrated version or publish two separate publications as originally planned.

After discussion, it was emphasized that the NCR-101 handbook was very different from what was proposed for the book and therefore we should go forward with the handbook focusing on growth

chamber users. No opposition or further comments were made. Since the motion of going forward with the handbook revision was already made in the 2002 meeting, a particular motion to confirm this decision was not needed. Ted Tibbitts and A.J. Both encouraged new authors to volunteer to help write a revision of the handbook.

2004 meeting in Australia

Rob Kerslake presented the proposed conference dates (March 14-17) and tentative programs for the 2004 meeting in Australia. The conference format is more formal, as it was during the UK meeting. The meeting starts Sunday evening and a post meeting tour starts on Wednesday afternoon, immediately following the concluding morning session. The 2.5 day tour will be optional. Trade exhibitions are also planned. Rob has been contacting groups in India, Phillipines, and Japan for enhancing participation from these countries.

Funding for supporting travel to 2004 meeting in Australia

Dan Schmoldt explained that a tentative funding strategy was proposed during a meeting with the executive committee members of NCR-101 during the lunch hour. The conference title or theme "Advances in Controlled environments for Sciences and Technology" was proposed for funding purposes. Publication of a proceeding will be considered. Dan Schmoldt continued and explained the proposed "funding committee" along with potential funding sources as shown below.

Funding sources	PIs	Target \$\$\$
USDA CSREES	R. Kanwar	10K
USDA NRI	C. Kubota and R. Kanwar	10K
NSF	R. Kanwar and C. Kubota	25K
OECD	R. Kerslake	10K – 25K
Other agencies (NASA, DOE)	R. Wheeler	?
Industry support	?	?
Australian support	R. Kerslake	?

Dave Tremmel asked if we should be prepared with a backup plan (in case Australian meeting does not happen). Dick Gladon made a motion that the 2004 meeting would be canceled if NCR-101 meeting does not go to Australia. Bruce amended the motion such that the 2004 meeting would be at Biosphere 2 in Arizona if not in Australia, as we agreed in the 2002 meeting in NC. Mark Romer seconded the amended motion and the motion was approved unanimously.

New Business

Nomination of new secretary

Dave Fleisher was nominated by the current executive committee as next year's secretary for the NCR-101. Dave Fleisher agreed that he was willing to serve as a secretary. Dave Tremmel asked if there were any other nominations from the floor but no nominations were made. Roy Young made motion to approve Dave Fleisher as a new secretary from 2004 meeting and Peter Ling seconded. The motion was approved unanimously.

Station Report

20 oral reports were made as shown below (in no particular order).

CRESTech (Richard Worsfold), Utah State University (Bruce Bugbee), University of Georgia (Marc Van Iersel), Duke University National Phytotron (Dave Tremmel), Rutgers University (Dave Fleisher), University of Connecticut (Rich McAvoy), Michigan State (Eric Runckle), University of Arizona (Chieri Kubota), Kennedy Space Center (Neil Yorio), Pennsylvania State University (Roy Young), Convicon (Reg Quiring), Convicon (Dave Brault), Ohio State University (Peter Ling), A.O. Rule (EGC), Allen

Wright (Biosphere 2), Purdue University (Cary Mitchell), University of Wisconsin (Ted Tibbitts), Crop Science (Keith Ingram), University of Guelph (Micheal Stasiak)

Student poster competition

During the meeting, all attendants had the opportunity to evaluate students posters and select the two best posters among 7 entries. Best poster awards were presented to Yang Yang (The Ohio State University) and Jamie Doran (University of Guelph), each awarded with a check for \$250.00 CDN.

Respectfully submitted,

Chieri Kubota
NCR-101 Secretary